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Exploring suburban agroecological agriculture and its contribution to food sovereignty in socialist Cuba

Romero Vasquez, Graciela

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By

Graciela Romero-Vasquez

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Graciela Romero Vasquez

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Jose Romero, Caoimhe Romero and Fiachra Romero

Abstract

Whilst substantial theoretical and practical evidence exists on the development and impact of agroecology and food sovereignty on society and nature in capitalist nation-States, there is little evidence to date on such developments in a Marxist-Leninist socialist nation-State. In this respect, Cuba has experienced the extremes of capital penetration in agriculture and the development of ecological agriculture at national level, where agroecology has been officially adopted in its national Suburban Agriculture Programme (SAP). This research analyses the extent to which the SAP contributes to the development of food sovereignty in socialist Cuba. Applying Marx's reflection of the fundamental shift in the relationship between human species and the rest of nature, or metabolic rupture, to the urgent need to change the current ecological, social and political crises of global food systems, this research contributes to bringing to the fore the dialectical relations driving change towards new paradigms from a socialist perspective.

The research develops an analytical framework combining food sovereignty-agroecology and the dialectic method to explore the Cuban Suburban Agriculture Programme, as part of the socialist Cuban Socio-economic Model. It captures agrarian and societal changes from a historical, dialectic critical realist perspective, crosscut with Marxian political economy, food sovereignty-agroecology theory. This guides the transformative mixed methods research approach that was implemented during nine months of field work in Cuba in 2017. The study was carried out in the municipalities of City of Cienfuegos, San Jose de las Lajas in Mayabeque and in three municipalities of Havana province. A total of 279 people (*campesino/as*[1], food processors, consumers/non-producers, distributors, researchers, government officials and staff) were interviewed using semi-structured interviews, a questionnaire on agroecological practices, and visits to food production, processing and distribution units. A national workshop on food sovereignty was also undertaken, the first of its kind, with participants from different provinces and sectors. These methods were supported with ethnographic active participation and secondary data obtained in-country.

This research has found that small- and medium-scale *campesino/as* or peasants undertaking ecologically friendly agriculture (that is, traditional agriculture, agroecological, low input, and/or organic), coupled with small- and medium-scale food industries within the Suburban Agriculture Programme, are contributing to mending the country's metabolic rupture. This is

[1] *Campesino*, *Guajiro* or Productor (peasant or farmer in English) are terms used to refer to people working the land. This is independently if they are wage earners (in a State-enterprise, mixed/private enterprises, or day labourers for individuals) cooperative workers o individuals-family in *fincas*, *parcelas or patios* with own land or in usufruct. These terms are also used regardless of the scale of work or location.

done by developing ecologically and socially friendly, multifunctional livelihoods that cross rural, suburban and urban areas, contributing to food and ecoservices production/provisioning and to local and national economy, thus contributing to building food sovereignty-agroecology at different scales. Within the socialist historical transformations of the peasantry and socialist property relations, these *campesino/as* are a new generation defying stereotypes of peasant backwardness as well as creating new notions of modernity. The realisation of their full potential to contribute to food sovereignty is determined by recurrent historical contradictions in the Cuban mixed approach to agriculture, in which conventional agriculture and ecologically friendly agriculture coexist. Due to the geopolitical position of Cuba, which magnifies the interdependences between international actors, nation-States and global para-State institutions in the development and understanding of food sovereignty-agroecology, the research findings have implications for the conceptualisation and praxis of food sovereignty-agroecology in Cuba and internationally.

Resumen

Aunque existe importante evidencia teórica y práctica sobre el desarrollo e impacto de la agroecología y soberanía alimentaria en la naturaleza y la sociedad en Estados-Nación capitalistas, a la fecha se encuentra poca evidencia sobre este desarrollo en Estados-Nación con socialismo Marxista-Leninista. Cuba ha experimentado los extremos de la intervención del capital en la agricultura y el desarrollo de la agricultura ecológica a nivel nacional, adoptando oficialmente la agroecología en su Programa de Agricultura Suburbana (PAS). Esta investigación analiza la contribución del PAS a la soberanía alimentaria en la Cuba socialista, utilizando la Reflexión de Marx sobre el cambio en la relación entre la especie humana y el resto de la naturaleza (ruptura metabólica) para abordar la necesidad de cambiar la actual crisis ecológica, social y política en los sistemas alimentarios. Finalmente, esta investigación contribuye a evidenciar las relaciones dialécticas que forjan el cambio hacia nuevos paradigmas desde una perspectiva socialista.

Se desarrolla un marco analítico que incluye soberanía alimentaria-agroecología y el método dialéctico con el fin de explorar el PAS, como parte del Modelo Socioeconómico socialista cubano. El análisis incluye cambios agrarios y sociales desde una perspectiva histórica y de realismo crítico dialéctico, usando la teoría de economía política Marxiana y la teoría de soberanía alimentaria-agroecología. Esta postura guía la metodología de la investigación, integración de métodos transformadora, implementada durante nueve meses de trabajo de campo en las municipalidades de Ciudad de Cienfuegos, San José de las Lajas en Mayabeque, y en tres municipios de la Provincia de La Habana, Cuba, durante el año 2017.

Un total de 279 personas (campesinos[2], procesadores de alimentos, no-productores/consumidores, distribuidores, investigadores, así como oficiales y empleados del gobierno) fueron entrevistadas usando: entrevista semiestructurada, un cuestionario sobre prácticas agroecológicas y visitas a los lugares de producción, procesamiento y distribución de alimento. Durante esta investigación, se realizó de manera innovadora, el primer taller nacional sobre soberanía alimentaria, con participantes de diferentes provincias y sectores. Estos métodos fueron apoyados con participación activa etnográfica e información secundaria obtenida en el país.

Esta investigación ha encontrado que pequeños y medianos campesinos practican una agricultura con tendencia ecológica (tradicional, de bajos insumos, y/u orgánica), que aunado a pequeñas y medianas industrias de alimento dentro del PAS, contribuyen a reparar la ruptura metabólica del país. Esto se lleva a cabo a través de medios de subsistencia multifuncionales, ecológicos y socialmente amigables, los cuales cruzan áreas rurales, suburbanas y urbanas, contribuyendo a la producción/provisión de alimentos y eco-servicios, a la economía local/nacional, construyendo así soberanía alimentaria-agroecología a diferentes escalas. Dentro de las transformaciones históricas socialistas al campesinado y a las relaciones de propiedad, estos campesinos son una nueva generación que desafían estereotipos de atraso atribuidos al campesinado y crean nuevas nociones de modernidad.

El desarrollo del potencial de los pequeños y medianos campesinos para construir soberanía alimentaria está determinado por las recurrentes contradicciones históricas en la perspectiva cubana de agricultura en la que coexisten agricultura convencional y ecológica. La posición geopolítica de Cuba amplifica las interdependencias entre actores internacionales, Estados-Nación e instituciones internacionales paraestatales, en el desarrollo y entendimiento de soberanía alimentaria-agroecología. De esta manera, los hallazgos de esta investigación tienen implicaciones en la conceptualización y praxis de la soberanía alimentaria-agroecología en Cuba e internacionalmente.

[2] Campesino, Guajiro o Productor son términos usados para referirse a personas que trabajan la tierra. Esto es independientemente si se refiere a trabajadores recibiendo un salario (en empresas estatales, empresas privadas-mixtas o trabajando para individuos), cooperativistas o personas dueñas de tierra o usufructuarios - parceleros y en patios). Estos términos también son usados indiferenciadamente respecto a la escala del trabajo o locación.

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List of abbreviations and acronyms

ACAO:	*Asociacion Cubana de Agricultura Organica* (Cuban Association of Organic Agriculture)
ANAP:	*Association Nacional de Agricultores Pequenos* (National Association of Small-scale Campesinos)
CCS:	*Cooperativa de Créditos y Servicios* (Credit and Services Cooperative)
CTA:	*Consultorio Tienda del Agricultor* (Agriculturalist Advice-Shop)
CREE:	*Centro de Reproducción de Entomófagos y Entomopatogenos* (Centre for the Reproduction of Entomophages and Entomopathogens)
DL:	*Decreto Ley* (Decree Law)
FAO	Food and Agriculture Organization of the United Nations
FS:	Food Sovereignty
FS-A-D	Food Sovereignty-Agroecology and Dialectics
GMO:	Genetically Modified Organism
GNAU:	*Grupo Nacional de la Agricultura Urbana* (National Group of Urban Agriculture)
GNAUSF:	*Grupo Nacional de Agricultura Urbana, Suburbana y Familiar* (National Group of Urban, Suburban and Family Agriculture)
INCA:	*Instituto Nacional de Ciencias Agrícolas* (National Institute of Agricultural Sciences)
INIFAT:	*Instituto Nacional de Investigaciones Fundamentales en Agricultura Tropical* (National Research Institute for Tropical Agriculture)
LVC:	*La Via Campesina*
MACaC:	*Movimiento Agroecologico de Campesino a Campesino* (Agroecological Movement Farmer-to-Farmer)
MINAG:	*Ministerio de Agricultura* (Ministry of Agriculture the current acronym)
MINAGRI	Ministerio de Agricultura (Ministry of Agriculture's previous acronym)
NGO	Non-Governmental Organization
NWFS	National Workshop on Food Sovereignty
ONEI:	*Oficina Nacional de Estadística e Información* (National Statistic and Information Office)
PIAL:	*Programa de Innovacion Agropecuaria Local* (Programme of Local Participative Innovation)
PCC:	*Partido Comunista de Cuba* (Cuban Communist Party)
UBPC:	*Unidad Basica de Produccion Cooperativa* (Basic Unit of Cooperative Production)

UAP: *Programa de Agricultura Urbana* (Urban Agriculture Programme)

USAP: *Programa de Agricultura Urbana y Suburbana* (Urban and Suburban Agriculture Programme)

USAFP: *Programa de Agricultura Urbana, Suburbana y Familiar* (Urban, Suburban and Family Agriculture Programme)

SAP: Programa de Agricultura Suburbana (Suburban Agriculture Programme)

SIGA: *Sistema Integrado de Ganadería y Agricultura Agroecologica*

SJLD: *San Jose de las Lajas* municipality

Chapter 1
Introduction

The penetration of agriculture by capital has brought profound transformations, not only in terms of how agriculture is practiced but also in the construction of spaces and changes in social-nature relationships, both in capitalism and socialism. As Marx and Engels reflected, the division between the city and the countryside which was deepened by the development of capitalist agriculture and industry, engendering a movement of people towards the cities (1968), thus destroying the economic and social fabric of rural areas or its natural metabolism (Marx in Bellamy-Foster, 2000). Although Marx's reflection was originally related to processes of dispossession of English peasantry, it remains valid in contemporary processes of capital generation and accumulation and the related upsurge of suburban (or peri-urban[3]) and urban agriculture in capitalist and socialist contexts. This is because capitalist relations of production are not localised, but, on the contrary, are based on imperialist relations (Amin, 1976; Wood, 2000). In this respect, historical accounts of nation-States articulated to socialist States as the 'socialist periphery' also evidence the problem of the division of labour and of countryside and town (Midnight Notes Collective, 1990; Wallerstein, 2002). For instance, the case of Cuba and its economic and political relations with the Soviet Union.

The contradiction engendered in the above division is magnified, and at the same time obscured, in the web of agrarian relations in contemporary suburban agriculture, for biophysical, socioeconomic, and political reasons. For example, within the context of neoliberal States, suburban spaces can be the new frontier for capital exploitation due to their availability of land, strategic access to communications, markets, services, and urban and rural labour (Tacoli, 1998; Allen, 2003; Marshall *et al*., 2009). As such it is the space where the rural and urban dispossessed engage in land-base and resource relations - albeit under unequal conditions (Ellis and Sumberg, 1998; Briggs and Mwamfupe, 1999; Mbiba, 2001; Allen, 2003). The generalised view of the problem by State and para-State institutions is as an increase in urban poverty and food insecurity, therefore the presumed need to increase food production (UNDP, 1996; Hoornweg and Munro-Faure, 2008) through either corporate or State-led industrial agriculture or under technologically oriented organic or low input agriculture. Thus, the structural political economy problematic, that is the economic, social, and ecological violence that generates dispossession, becomes a problem of food access as Friedman points out (1993). In this context, suburban agriculture is conceived as an

[3] 'Suburban' in this thesis is used instead of 'peri-urban' as the former term is commonly used in Cuba.

individualised solution for urban poverty and food insecurity, which are seen as residual problems of disarticulated precarious livelihoods of rural migrants and the urban poor.

Marx and Engels (1968) contend that eradicating private property is the path to overcoming the contradictions engendered in the division of labour and the division between the countryside and town. Therefore, drawing on Marxian theory it is understood that collective property in a centralised State-led form of socialism can be the solution (Engels, 1894; Lenin, 1966). From a libertarian socialist perspective - anarchism - it is also believed that collective property provides a way to resolve the contradiction, however within a decentralised and anti-State form of socialism (Kropotkin, 1898; Dolgoff, 1972; Wallerstein, 2002). From another angle, the largest transnational social movement, La Via Campesina (LVC), addresses the contradiction from the perspective of the dispossessed, that is the peasant as an individual and class. In doing so, reasserting the full identity of peasants and their mode of production within a structural and wider goal, the transformation of the capitalist paradigm through Food Sovereignty (FS) (Nyéléni, 2007). It does not ignore the issue of social-property relations or class relations; but it also expands the debate to the contradictions and challenges of having a diverse constituency with contrasting positions regarding private and collective property. Thus, extending the theoretical and practical path to eradicate any master-slave relations between humans-to-nature or human-to-human. This involves a multidimensional perspective in which agroecology is seen as part of FS (Nyéléni, 2015). In this context, Bellamy-Foster argues that agroecology is directly compatible with socialism - as in Marxist-Leninist type of socialism (2008). From this point of view, agroecology, FS and socialism, within a specific type of socialism, and from the perspective of LCV and allies, can be explored as possible paths to resolve the contradictions of the countryside and town divide, in which the web of relations associated with suburban agriculture is enmeshed.

Bearing the above in mind, Cuba is a unique case in which agroecology, FS and socialism - within the Marxist-Leninist perspective - can be explored simultaneously in a contemporary Marxist-Leninist socialist State, with a State-led Suburban Agriculture Programme using agroecological and low input practices. In this regard, this thesis presents research carried out on the Cuban national Suburban Agriculture Programme (SAP), which is emblematic in that it carries the legacy of the widely studied Cuban urban organic agriculture[4], and shows how this legacy was taken forward in the country. After three decades of organic urban agriculture under this programme - which included suburban production in its definition, - the latter became a distinctive multi-purpose programme in which agroecology was officially adopted. It

[4] Which evolved in the middle of the peak oil crisis after the collapse of the Soviet Union.

has a national scope, coexisting alongside industrial agricultural programmes within the Cuban Socialist Socio-economic Model (Partido Comunista de Cuba, 2017b). The SAP is of great importance as it is right at the centre of Cubans' ongoing work to develop their own style of socialist sustainable development (as stated Fidel Castro in his speech at the UN conference on Environment and Development (UNCED) - Earth Summit in 1992 (Castro, 1992)). In order to explore the SAP's structural and empirical aspects, this research designed an analytical framework referred to as Food Sovereignty-Agroecology and Dialectics. This approach responds to the overall research aim: To explore suburban agroecological agriculture and food systems and its contribution to FS in Socialist Cuba.

This first chapter presents the problematic in which the research's aim and objectives are framed, and comprises four aspects: 1. the relevance of Cuba's SAP as an experience that contributes to the multiple and diverse endeavours to build a new paradigm in food and agriculture systems; 2. an overview of the context in which suburban agrarian relations have been positioned; 3. an introduction to the theoretical background of the socialist path to development and its relationship with the capitalist global para-State structure 4. an introduction to the knowledge gap that the research's analytical approach is addressing. The chapter ends with the introduction of the research aim, objectives and related questions, and the structure of this thesis.

1.1 The relevance of the Cuban experience in suburban agriculture and use of agroecology

The Cuban experience with organic and low input agriculture is often portrayed internationally in terms of "an agroecological heritage for humanity" (Altieri 2016:12); "the most revolutionary experiment in agroecology on earth" (Bellamy-Foster, 2008:6); "Cuban organic agriculture model can mend metabolic rift" (Clausen, Clark and Longo, 2015:18) "the government of Raul Castro has made a renewed commitment to food sovereignty and agrarian reform" (Rosset, 2009:119), and "..agroecological farming become a form of resistance and national policy during the 1990s" (Giraldo and McCune, 2019:789). Other authors, have flagged up Cuba's problem of reverting to the agro-industrial model after the 1990s crisis and how this impacted on the actual adoption of a systemic sustainable approach (Caballero-Grande and Vazquez-Moreno, 2016). These two views show why Cuba is such a relevant case to explore in terms of its endeavours to transform and reverse the problematic social-natural relations based on capitalist logic and its accompanying world view. Cuba has experienced the extremes of capitalism and the Marxist-Leninist approach to socialism, and some argued (Sousa-Santos, 2009) that it is constructing a different kind of socialism. During this process, the country

attained one of the most extreme advances of industrialised agriculture among the countries of the Global South (Rosset and Benjamin, 1994; Wright, 2005), but also reduced this model of agricultural development to one of the lowest input use in the history of the country during the Special Period. The development path that Cuba followed out of these two extremes is still unfolding, and the Suburban Agricultural Programme and its adoption of agroecology is a key aspect of it.

A historical moment which exposed to an extent some of the traits of Cuba's national strategy to sustainable development was in 2007, when Raul Castro initiated reforms that would affect the economic model (Castro, 2008). An important initiative was the redistribution of idle land and its direct connection with the official launch of the Suburban Agricultural Programme (SAP), to be implemented under self-sufficiency and with the use of agroecological practices and low inputs. The relevance of the Cuban SAP is that it fully demonstrates the pattern of straddling between two extremes, industrial agriculture, and an ecologically friendly agricultural approach, both State-led, in which the role of the small- and medium- scale *campesino/a* has been recognised as key. This condition makes the Cuban SAP significant not only for a specific socialist nation-State context, but crucially as a contrasting learning experience for the endeavours of constructing sustainable agriculture in a new paradigm.

In this line of thinking, the Cuban official adoption of agroecology within the SAP and how it connects with the FS framework are additional reasons for making the Cuban experience of utmost relevance for social movements struggling to build food sovereignty-agroecology while withstanding hegemonic co-option. This is even more so since there is a tendency to generalise Cuban agriculture as agroecological and Cuba as a country which has adopted FS. There are accounts of the adoption of FS and agroecology in capitalist contexts (Henderson, 2017; McKay, 2020), however not many from current experiences of Marxist-Leninist socialism in a one-party State. In this respect Nepal and its constitutional adoption of FS differs in that it has a multiparty democracy among other traits (Tilzey, 2018b). It also differs from China's single political State-led party where contemporary struggles towards agroecology and food sovereignty at the grassroots level are taking place, for instance from ecological feminists' perspective (Salleh, 2012). However, they are not institutionalised or embedded in China's one-party politics; on the contrary they can be described as underground and as Salleh puts it, an opportunity to heal socialism (Ibid). Moreover, China's current leadership does not totally adhere to Marxist-Leninist ideology as in the case of Cuba's socialism, where this is constitutionally enshrined. In this respect, a full or comparative analysis with Nepal or China is not addressed in this research, this is considering that this research is not comparative research and in the case of China it is due to the specificity and nuances of the

historical Chinese context in relation to the peasantry and its long standing involvement in the country's insurgences and revolution, agrarian relations, division of the rural and urban and development strategy (Tse-Tung, 1927; Wolf, 1969; Huang, 1975; Muldavin, 2002; Schneider, 2014). Moreover, the scope of this research is limited by time constraints and thesis length requirements.

1.2 Suburban agriculture: a web of social-natural relations defined by social-property relations

There is no consensus about the definition of suburban agriculture among scholars, although it is common to find suburban agriculture included as part of urban agriculture. Many studies on urban and suburban agriculture use the definition proposed by Mougeot as *"*Urban agriculture is an industry located within (intra-urban) or on the fringe (peri-urban) of a town, a city or a metropolis, which grows or raises, processes and distributes a diversity of food and non-food products, (re-)using largely human and material resources, products and services found in and around that urban area, and in turn supplying human and material resources, products and services largely to that urban area*"* (2000:10). This definition is retrieved here despite its technical approach, because of its current widespread use across literature on suburban agriculture, and to highlight that it sets the pattern of how suburban and urban agriculture is often approached from a functionalist approach and as an 'industry' related to urban and suburban spaces. This definition reflects the worldview permeating the policy making from whence the definition originated, namely the importance of industrialisation and overcoming 'backwardness'.

Suburban agriculture in this research is understood as a web of social-natural relations interconnected with historical transformations of agrarian relations across the territory and its different territorialities (Mançano-Fernandes, 2008)[5]. This understanding draws on analysis of the conceptualisation of 'peri-urban' or suburban space and on empirical studies by several authors approaching the issue as a physical category and also as the space in which agriculture takes place (Pryor, 1968; Smit, 1996; Tacoli, 1998; Rakodi, 1999; Iaquinta and Drescher, 2000). It also draws on Marxian political economic analysis of the capital penetration of agriculture and transformation of agrarian relations intimately connecting rural and urban dynamics. This is the case with the agrarian question, as a problematic and as an analytical framework (Akram-Lodhi and Kay 2010a), intersecting land dispossession, rural-urban

[5] Territory here means a category constructed in relation to nature and human class relations, which also has diverse territorialities according to governance, culture and relation to material means (Mançano-Fernandes, 2008).

migration, proletarianization[6], semi-proletarianization[7], job precariousness[8] and also resistance to structural poverty across the territory (Tilzey, 2018b, 2021).

Suburban agriculture is a category that encapsulates a social-nature relationship produced and reproduced by specific social-property relations around land and natural resources, therefore it is historically and context-bound. The different interpretations of the concept in different historical moments and civilizations illustrate this point. The practice of suburban and urban agriculture in Western and non-Western civilizations has existed for millennia and it is connected to rural spaces (Pryor, 1968; Steel, 2008; Vanden and Becker, 2011) however, it is not the same to compare suburban agriculture in the Inca civilization to agrarian relations around the formation of the first cities in Cuba during the colonial development and expansion of the sugar agroindustry amid imperialist plunder (Amin, 1976; Callejas-Opisso *et al*., 2015). Nor is this how the suburban space and agriculture is conceptualised within the neoliberal narrative of urbanisation processes and the need to produce more food to alleviate rural and urban poverty.

Moreover, historically both suburban and urban agriculture has increased and transformed alongside changes in the capitalist mode of production and its crises and re-accommodation through, inter alia, national and global para-State institutions' macro-policies. The first global upsurge of urban and suburban agriculture occurred after the consolidation of the US 'Political Productivistic' food regime (Tilzey, 2018b), industrial agriculture, and the dismantling of traditional peasant agriculture in the 1960s (Pryor, 1968; Friedmann, 1993). Later there was another wave during the global food crisis in 1972-73 (Tacoli, 1998). Urban and suburban agriculture continued growing to reach new levels during the debt and food crisis across countries in the Global South as a consequence of Structural Adjustment Policies in the 1980s. People were pushed into urban and suburban agriculture as semi-proletarians and/or as part of the growing informal economy sector in cities across Africa, Asia and Latin America (Maxwell, 1999; Briggs and Mwamfupe, 2000; Mbiba, 2001). Regarding these political processes, reviews of urban and suburban agriculture often characterise this as a poverty problem for "developing countries" (the term often used) (UNDP, 1996; Zezza and Tasciotti, 2010; FAO, 2011; Orsini *et al*., 2013) and a planning and environmental problem in the North

[6] Here proletarianization refers to full transformation, of peasants, Indigenous people, and independent producers into a class of wage-earner without access to means of production except through its labour force (or proletariat according to Marx (1976)), by processes of dispossession and capital accumulation through the market in capitalism and by State-led collectivization in some types of socialism.
[7] The process in which peasants and producers' access productive land and means of production is diminished or compromised by processes of dispossession and capital accumulation through the market, therefore they must rely on self-production as well as selling their labour to meet their needs (Tilzey, 2018b).
[8] Job precariousness involves poor pay, intermittent employment, or self-exploitation in the informal sector. This situation is also connected to the concept of semi-proletarians (ibid).

(Ravetz, Fertner and Nielsen, 2013), without establishing the global geopolitical economic and social agrarian dynamics of uneven economic development and peripheral imperialism (Amin, 1976; McMichael, 2000; Harvey, 2006; Tilzey, 2021). For instance, push and pull factors contribute to rural migration towards suburban and urban areas, and these are related - inter alia, to land and labour based unequal power relations due to land grabs and agrofuels production (Borras and Franco, 2012; McKay, 2020), States leasing land to export processing zones, and agricultural corridors as development strategies (Holt-Giménez and Patel, 2009), increased debts due to industrialised agricultural packages and enforced intellectual property rights (Lewotin, 2000; Bello, 2009).

The promotion of suburban and urban agriculture as a vehicle to tackle food insecurity and poverty (UNDP, 1996; Hoornweg and Munro-Faure, 2008; de Zeeuw and Dubbeling, 2009; FAO, 2014b; Magnusson, Follis-Bergman and Katunguka-Rwakishaya, 2014) or to release good rural agricultural land for agro-exports (Drescher, 2000) reflects the shift in food politics and the burden that has been put on individual self-provisioning and informal networks (Friedmann, 1993). Viewed from another angle, this shows that the agrarian question through the creation of jobs in industries (Bernstein, 2006) and the increase in food production through industrialised agriculture (World Bank, 2007) it is far from being resolved. This is reflected in how urban and suburban agriculture as a livelihood is inserted into the logic of agrarian capital generation, through precarious access to means of production, as semi-proletarians or engaged in precarious agricultural and non-agricultural jobs in the city to make ends meet and production for family self-consumption (Tilzey, 2021). This also exposes the process of capital accumulation through the insertion of people engaged in this type of agriculture in the market both as net food buyers, and sellers of surplus produce as well as their labour (Wood, 2002). In this context, in 2008, during the global food, finance and oil crisis and when the urban population had surpassed the rural population, paradoxically, the World Bank launched its report “Agriculture for Development” (2007). After decades of State disinvestment in agriculture, and macro-policies pushing for industrial development and trade liberalisation promoted by the World Bank and through the UN Agenda 21 (1992), Agriculture for Development was presented as a return to the countryside, not necessarily to produce but through insertion into the market. The aim was to help the transition of large numbers of people into value chain jobs as workers in agroindustry or small-scale production of export-oriented crops (Holt-Giménez and Patel, 2009; McKay, 2020). Some recent developments on what it has been called urban agroecology (Tornaghi and Dehaene, 2020) and the notion of the agroecological city-region (Vaarst *et al*., 2018) have brought to the debate the agency of people in the web of processes in the urban, rural and suburban agrarian relations (Tilzey, 2021). From this perspective of relationality across agrarian relations outside the agroecology

debate, Jacobs (2018) also positions urban agriculture in the context of class relations and struggles for resources and identity.

Bearing in mind the above, the concept of suburban agriculture in this research, is viewed from the perspective of the agrarian question and process of dispossessions and the impact they have on processes shaping and transforming the territory, the peasantry and their relationship with the land and natural resources and overall labour division. This point is substantiated in this thesis through analysis of the definition of suburban agriculture in Cuba, its application to peripheral areas of rural and urban spaces (as territory) in a flexible manner depending on land-based relationships and political strategies. This also relates to the SAP origins in the Urban Agriculture Programme, with its overarching and holistic approach to urban and suburban agriculture to address national agrarian relations, economic, ecological and food insecurity problems rather than focusing only on an urban problem per se, as explained in more detail in the historical precedents of SAP in chapter 4.

1.3 The Socialist path to development and the global capitalist para-State structures

There is one common factor between the paths to capitalism and socialism taken by newly independent nation-States after World War II, namely the profound rupture in the "sustainable relation to the earth"[9] (Marx, 1844 in Bellamy-Foster, 2000: chapter 5) engendered by capitalism. This rupture is what Marx elaborated as the metabolic rift, the fracture of ecological and social systems in the antagonistic division between the rural and countryside, and the fracture of relationships between human beings and the earth (ibid). The rupture between human beings and nature and its impact on future generations highlights the very essence of the civilization that engendered capitalism. Moreover, Marx's analysis of 'metabolism' with its naturalism and humanist basis helps in understanding that the 'rift' was not only about soil nutrients, although this was the basis of his analysis, but also was a political economy, social and ecological problem, connected to colonialism. The metabolic rift internalised in Western civilization is manifested in the notion of modernity-industrialisation versus backwardness, the latter typical of non-European nations and regarded as something to be eliminated (Moyo, Praveen and Yeros, 2013). The variegated types of, and paths to, capitalism (Wood, 2000; Brenner, Peck and Theodore, 2012; Moore, 2015) and to socialism based on Marxist-Leninist ideology (Colburn and Rahmato, 1992; Leftwich, 1992; Hudis, 2018) adopted by the newly

[9] Marx noted in his Economic and Philosophical Manuscripts "Man lives from nature, i.e. nature is his body, and he must maintain a continuing dialogue with it if he is not to die. To say that man's physical and mental life is linked to nature simply means that nature is linked to itself, for man is a part of nature." (Marx, 1844 in Bellamy-Foster, 2000: chapter 2).

independent nations are associated with this dichotomy. The Marxist-Leninist socialist States adopted capitalist industrialisation versus backwardness motto, as such adopting in a teleological and decontextualised manner, the Marxian premise that socialism develops out of capitalism, or the material means it creates.

The industrialisation-backwardness dichotomy in the construction of the Marxist-Leninist approach to socialism was immersed in two interrelated sets of problems: the agrarian question and dependency. The classical agrarian question, concerns the role of agriculture and the peasantry in the generation of agrarian capital as reflected by Kaustky, Marx, Engels and Lenin (Engels, 1894; Lenin, 1975, 1976), bearing in mind that it was necessary to deal with the peasantry and its internal divisions, and the role these had in liberation struggles. This involves, therefore, the question of labour, namely the transformation of the peasantry into workers or maintaining them as drivers of agrarian capital generation for industrialisation, as proposed by Preobrazhensky's 'socialist primitive accumulation'[10] or 'vertical cooperativism' with the (non-violent) imposition of a high tribute on the peasantry (Akram-Lodhi and Kay, 2010). Additionally, the emulation of the industrialisation model in socialist States was not undertaken in similar conditions to that of capitalist nations. For instance, the process of industrialisation in capitalist centres such as England was not based on divestment from agriculture and a total focus on industry (e.g. manufacturing), but rather was coupled with a more profitable "investment" in the pursuance of agro-capitalist imperialist adventures (Wood, 2002). Thus, overproduction of commodities was on the one hand based on global primitive accumulation and the exploitation of local labour, and on the other hand by plunder of human labour and natural resources in the colonies (Wood, 2002; Moyo, Praveen and Yeros, 2013). Therefore, the capital investment and technology necessary for the socialist path needed to come from allies, which led to dependency, as in the case of Cuba with the Soviet Union. The agrarian question and dependency were diffused in the path to Marxist-Leninist socialism, with the focus on consolidating national liberation and sovereignty and the political alliance of the workers and peasantry to build the 'proletariat State' (Lenin,1975).

The proletariat State, a situation in which the workers take control of the State with the workers leading the individualistic and backward peasantry does not mean that the actual workers will in fact be the leaders. It is necessary to have a stratum of 'intelligentsia' and a vanguard Party better equipped to lead the 'proletariat State'. Moreover, the alliance between the peasantry

[10] "Preobrazhensky's primitive socialist accumulation is the 'accumulation in the hands of the State of material resources mainly or partly from sources lying outside the complex of State economy' during the period of structural transformation … [it] required the appropriation of the agricultural surplus of the peasantry, which could be used to finance investment in the expanding socialist industrial sector that could underpin post-capitalist structural transformation" (Preobrazhensky, 1972 in Akram-Lodhi and Kay, 2010a:194).

and the workers has not been manifested in an actual peasant-lead socialist State. Instead, they are represented by other forces. Even in China under Marxist' Mao (one of the strongest supporters of the peasantry - despite Marxists' derogatory perception of it (Tse-Tung, 1927; Huang, 1975)) and the peasantry's decisive role in revolutions and to constitute the Chinese proletariat State, they were never the leading force within the State's different Strata as commented by Wolf (1969) and Huang (1975). Additionally, peasant's differentiation, whether as the classical division of upper, middle and lower peasantry (Engels, 1894; Tse-Tung, 1927), or in a more nuanced characterisation than this - as Banaji (1990) reflects in his analysis of the agrarian question - as well as the diverse historical peasant transitions in capitalist and Marxist-Leninist socialist States, is often skewed or manipulated under the generalist or essentialist use of the term peasant within party-political strategies. This to an extent reflects Engels' classical view of the peasants as 'belonging to us' (the Party) on the issue of the agrarian question as a political issue (Engels, 1894) or in Engels's view of peasants as 'electoral voters' (Banaji, 1990).

In Cuba's geopolitical context, the fundamental capital-labour relationship of the agrarian question involves other contradictions, namely the suppression of civilizations and oppositional social and political forces which took place in Latin American and Caribbean nation-States. The clash with and suppression by European colonizers of Indigenous people, Africans descendants from the slave trade, were partially obviated by the revolutionary and/or political forces leading national liberation struggles and the formation of new nation-States (Fanon, 1963; Batalla, 1996; Esteva, 2001; Vanden and Becker, 2011). As well as this contradiction, there is the historical clash between views on the path to socialism, for instance Marxist-Leninist socialism and libertarian socialism, as is the case in Cuba (Casanovas, 1998; Fernández, 2001; Shaffer, 2003, 2019). Thus, besides the suppression of civilizations, there was forced silencing of other views about socialism for instance as proposed by the Cuban anarcho-syndicalists, who strongly rejected the idea of party-politics and the anti-authoritarian State, even if it was a proletariat one (Dolgoff, 1977; Fernández, 2001). Moreover, for libertarian socialism with its stance against the State and any authoritarian and centralised forms of governance, the modernization and industrialisation processes were not alien to construction of socialism. In this regard the question of the peasantry as a social, political, and economic force presented further nuances among anarchists. For instance, Mikhail Bakunin and more contemporary anarchists even with their strong defence of the peasantry as a political force that should be won over in solidarity in the context of a pluralistic society,

considered that peasants were ignorant, superstitious[11] and conservative and he counted on the urban forces to play a leading role in radicalising the peasants (Bakunin in Dolgoff, 1972). In this respect, anarchist Kropotkin in his work 'the State Its Historic Role' (1898) provides a contrasting revelatory account of the peasantry as a social and political force in the historical formation of the State.

In this context, the construction of new nation-States following some socialist principles was not a partial or total emancipation of the Western worldview. This is because the reproduction of Western modernity is reproduction of its structure or social-property relations, in which superstition and backwardness is believed to be overcome by science and industrialisation and the reproduction of hierarchical State centred societal systems (Mariategui, 1928; Lenin, 1966; Gramsci, 1971).

While the national elites built the new nation-States and, in some cases, parcelled out the wealth, resources and labour among them, (Fanon, 1963; Esteva, 2001) the imperialist nations built a broader web of influence to maintain the core and periphery relationship for capital generation and accumulation (Veltmeyer, Petras and Vieux, 1997; Chang, 2003; Bello, 2009). This was done through para-State institutions, and "multi-scalar governance arrangements" (Khor, 2000) within institutions such as the UN and the World Bank pushing forward the Western capitalist worldview. An example of this is the origin of concepts such as the right to food and food security and their promotion by the FAO in both capitalist and socialist nation-States (Fairbairn, 2011). Another important example of the power of para-State institutions to create hegemony at international level and to influence national development agendas is the UN's Agenda 21. This initiative set the ideological principles promoted to nation-States across the world and the basis for the Millennium Development Goals that impact on understanding of urban and rural agrarian relations and the process of urbanisation. Agenda 21 identifies urbanisation as a growing problem but at the same time takes it as a fait accompli. For example, points 7.18 and 7.19 in the document on the management of human settlement refer to how to facilitate the transition from rural to urban centres: "intermediate cities that create employment opportunities for unemployed labour in the rural areas and support rural-based economic activities, although sound urban management is essential to ensure that urban sprawl does not expand resource degradation over an ever wider land area and increase pressures to convert open space and agricultural/buffer lands for development." (United Nations, 1992). Moreover, strengthening the role of 'farmers' is inter alia supporting them with

[11] It is worth considering the view of the peasantry as superstitious individuals, as held by Marxists and classical anarchists, and the contemporary view of anarchists such as Murray Bookchin's proposal of social ecology with its strong leniency towards the rational aspect of human's beings (for more on this see Bookchin, 1982, 1987).

technologies and other livelihoods to prevent their overexploitation of natural resources, to support the poor and women to get land rights, insert them into the market and help them to get employment, and to protect the environment - all this with the proviso that trade liberalisation is not hindered, or that States do not lift protection barriers against trade, this in the spirit of sustainable development through trade (McKeon, 2015). A critical ideological mark of the Agenda 21 is its tokenism and the insertion of "farmers" (regardless of the differentiation between them) alongside other actors such as transnational corporations, and the scientific community, obviating the differences in class and power relations within the "capital-State nexus" (Tilzey, 2018b).

This study engages with these debates in as far as FS-Agroecology is dialectically related to the construction of independent and sovereign nations and the impact on this of para-State international institutions. Thus, these debates give context to the research questions of how suburban agroecology has developed in Cuban Marxist-Leninist socialism and how this contributes to FS, which are explored throughout this thesis.

1.4 Knowledge gaps addressed in this research

Agroecology has been positioned in the field of natural and social sciences from a positivist and hermeneutic perspective, sometimes mixed with Marxian theory[12], leaving unanswered questions/inconsistences at the ontological and epistemological level. For instance, as an epistemic fallacy, or subsuming or including ontology within epistemology and as a flat ontology, taking reality as an undifferentiated, static and unstratified sum of elements (Bhaskar, 2008). Some of the epistemological concerns have been discussed by scholars, but their conclusions make explicit that the debate is still in progress (Hecht, 1987; Dalgaard, Hutchings and Porter, 2003; Gonzalez de Molina, 2013; Guzmán-Sevilla and Woodgate, 2013; Méndez, Bacon and Cohen, 2013). In addition to this the research addresses the limited knowledge about the development of agroecology and FS in a Marxist-Leninist socialist nation-State. The next chapter, the analytical framework of this research, presents the analysis of the conceptualisation of agroecology and its ontological and epistemological relation with FS, thus addressing the knowledge gaps.

[12] Adopting a positivist view of science together with an uncritical view of Marx' method (Walker 2001).

1.5 Research aim, objectives, and related questions

Aim:

To explore the development of agroecology in suburban food and agricultural systems and its contribution to food sovereignty in Cuba in the light of the updating of the country's Socio-economic Model.

Objectives:

1. To explore the development of agroecological suburban agriculture in Cuba

What are the historical precedents of suburban agroecological food and agriculture systems in socialist Cuba?
What are the characteristics of current suburban agroecological food and agriculture systems?
What is the contextualisation of agroecology and the food sovereignty framework in Cuba?

2. To explore the multifunctionality aspects of suburban agriculture

To what extent is suburban agroecological agriculture multifunctional in Cuba?

3. To explore how suburban agroecological food and agricultural systems contribute to food sovereignty.

To what extent do suburban agroecological food and agriculture systems contribute to food sovereignty in socialist Cuba?

The above objective-related questions are not approached or answered separately, chapter by chapter directly, but throughout the entire research. They are interconnected and taken together to address the objectives which in turn contribute to achieving the overall aim of the research.

1.6 Structure of the Thesis

This thesis comprises seven chapters, including this introduction.

Chapter 2 presents the analytical framework developed and used throughout the research to explore suburban food and agriculture systems in socialist Cuba, based on agroecology and

its contribution to building FS in the country. The first part of the chapter presents the philosophical assumptions underpinning FS-A-D, including the dialectical perspective used in the research, based on Karl Marx's Dialectical Historical Materialism and Roy Bhaskar's Dialectical Critical Realism. The second part presents a dialectical historical analysis of the conceptualisation of agroecology and its relation to FS. The chapter ends with a description of the components of the analytical framework developed to address the research aim and objectives, namely *Food Sovereignty-Agroecology and Dialectics* (FS-A-D).

Chapter 3 describes the process of building the methodology including the conception of the research topic in the UK, researcher's positionality, dialogue with participants in Cuba, the process of consent building with the Cuban authorities, and the final reflection on this process which led to the selection of the transformative mixed method methodology. It explains the reasons for selecting the transformative rather than simply a mixed methodology to resonate with the transformative aspect of the FS-A-D. The chapter then presents the specific aspects of the methodology, namely selecting research participants, geographical sites and methods for interacting with participants' reality and collecting information. It describes the steps for collecting, organising and analysing information throughout the research according to the FS-A-D.

Chapter 4 considers the precedents of the SAP through a historical analysis of Cuban agrarian relations covering key political events prior to and around the success of the 1959 Revolution, the creation of the SAP and the updating of the Socio-economic Model, with discussion of the type of socialist vision underpinning the process of rural modernisation and the resolution of the Cuban agrarian question and its impact on the peasantry. This is followed by an analysis of the geopolitical relations of the country with regard to the US Blockade and dependency on the Soviet Union until the crisis of the 'Special Period in time of Peace', and the emergence of ecologically friendly agriculture and its emphasis in urban and suburban areas. The chapter then moves on to the updating of the Socio-economic Model and its relationship with the economic model and the agricultural sector and finishes with a historical trajectory of the introduction of the term agroecology into Cuba.

Chapter 5 explores the current situation of the SAP, through the three elements of the FS-A-D framework. That is the dialectical method principles, the 'four-planes of social being' and the Six FS Pillars and agroecology (as presented in Figure 2.6). The Six FS Pillars serves as guiding format to present the SAP's current situation. This chapter therefore comprises six sections, covering each of the FS Pillars: 'Working with Nature' (5.1), 'Valuing Food Providers' (5.2), 'Localising Food Systems' (5.3), 'Focusing on Food for People' (5.4), 'Putting Control

Locally' (5.5.) and 'Building Knowledge and Skills' (5.6). Each section or Pillar considers three vantage points: first a theoretical analysis of the FS Pillar, second analysis of the SAP from the official narrative, and third from the viewpoint of research participants as individuals, including government officials. The content of this chapter constitutes the basis of the characterisation of the SAP.

In Chapter 6 the SAP is analysed as a totality, reviewing both the past and current situation of the programme, with a discussion of the major dialectical changes, contradictions and connections uncovered in chapters 4 and 5. The analysis is aided by using the second tool of the FS-A-D framework, the 'four-planes of the social being' which is used to explore and present the SAP's stratified ontology as a differentiated totality. Thus, the socio-natural interdependences of the SAP are put into context. This chapter put into perspective interrelations between Humans-to-Nature, Human-to-Human, Emergent Totality or institutions and the Transformative Praxis, thus bringing to the fore the agency of the individual and the collective.

Chapter 7 presents the research conclusion. It is the last step in the dialectical analysis where the findings of the past and present are projected into the future, thereby identifying the seeds of the future already in the present. This is done by presenting major dialectical movements that impact the SAP in its transformation, hence providing possible implications for application in theory and practice by social movements and individuals carrying out transformational endeavours.

Chapter 2
Analytical Framework

The challenges and conflicting aspects that converge in the construction of FS-Agroecology and the new world view that it entails, demands radical and transformative approaches, practical and theoretical, to critically analyse the old worldview and its systems and to find/construct paths to build the new one. This requires a critical review of the ontological and epistemological foundations on which the old systems are based. Bearing this in mind, the approach to study the suburban agroecological food and agriculture systems and how it contributes to FS in socialist Cuba, the aim of this research, entails both a critical analysis of the philosophical assumptions of the process of knowledge production as well as the theoretical assumptions and political praxis related to it. From this analysis emerges the analytical framework used in this research, Food Sovereignty-Agroecology and Dialectics (FS-A-D).

The analytical framework emerged from (a) analysis of the literature that supports the research and (b) the researcher's own positionality regarding the philosophy of scientific enquiry. The literature review included: analysis of philosophical scientific perspectives and the concepts of agroecology and FS. This chapter presents the analytical framework in three sections: the first presents an overview of the ontological and epistemological assumptions adopted in this research and underpinning the framework. The second presents the analysis of the conceptualisation of agroecology and FS. The two sections are taken as a totality in that the analysis of the concepts is undertaken through the lens of the philosophical assumptions. This enables a complex and multidimensional view of reality and scientific process, in which multiple elements, processes and relations interact in time and space to create open-ended and/or transitional processes and realities. This draws from Roy Bhaskar's analysis on human sciences (2015) and reflecting on the multidimensional nature of agroecology and FS. The last section of the chapter provides a summary of the FS-A-D analytical framework and steps to apply it. The analytical framework and its connection with the design of the research's methodology and its application in the research is presented in chapter 3.

2.1 Philosophical assumptions underlying this research

The first step to address the knowledge gap regarding the conceptualisation of agroecology is through presenting the philosophical assumptions that guides this research. It is argued in this research that the gaps respond to the early positioning of agroecology, within the remit of

one system of knowledge, the scientific system (Altieri, 1995; Gliessman, 1998; Dalgaard, Hutchings and Porter, 2003) despite the fact that agroecology spans different knowledge systems and epistemic subjects (Hecht, 1987; Hernández-Xolocotzi, 1988; Pierre Rabhi in Pimbert, 2017). This subsuming of subjects and knowledge originates from neglecting the fact that reality or ontology is defined differently, in its narrow sense. In its fundamental and broad sense, this attempt to fit agroecology within the mainstream knowledge system, positivist science, has created ontological, epistemological and methodological vacuums, which have masked and exacerbated contradictions between historical subjects and their worldview (which include their own ontological and epistemological stances). In this sense, agroecology has been based on a political stance - in the sense of power relations - that posits science as the only way to produce knowledge and validate knowledge.

In the same line of reasoning, ideologies and political interests shape knowledge and research agendas which in turn are used for political views, thus perpetuating the status quo. In this respect, it is useful to retrieve three ideas presented by Kuhn, 1. Production of knowledge is determined by one's way of viewing the world, 2. Since there are diverse ways of viewing the world, there are diverse ways to create knowledge, and 3. power relations determine what is considered knowledge or who appropriates it (1962). Also, to remember Bhaskar's argument: "I should make it explicit that I do not see science as a supreme or overriding value, but only as one among others to be balanced (in a balance that cannot be wholly judged by science) in emancipatory and eudemonistic [human flourishing] activity. Nor do I think the objects of science exhaust reality" (Bhaskar, 2008:13). In other words, the study of both agroecology and FS cannot be assumed from an epistemological given, namely only from the point of view of science. The reality or ontology of agroecology needs to be first explored and defined, as Bhaskar posits from his critical realist stance, to subsequently establish its epistemological path, which is how that reality will be understood.

In this context, this research uses the Dialectical Historical Materialism (DHM) and Dialectical Critical Realism (DCR) perspectives to address the ontological and epistemological gaps.

The benefits of using these perspectives, reside in that:

1. their philosophical underworking, as Bhaskar put it, permits the possibility of exploring both social and natural aspects of agroecology from a naturalist-scientific perspective, while recognising that they have their own ontology and epistemology, that is unity-in-difference in sciences (2015).
2. there is the possibility that a new ontology and epistemology emerges which approaches agroecology's 'subjects of study' as a unique subject, rather than trying to

prescribe them as natural or social sciences or as a hybrid throughout. Drawing from Bhaskar's reflection, in this fashion, the study of agroecology and FS as an interrelated subject can be approached more consistently in line with its ontological nature. Moreover, acknowledging the diversity of knowledge systems intrinsic to it.

3. the integral transformational attribute of agroecology and FS can be explored consistently in both ontological and epistemological tenets, as part of a process-structure rather than as an element separate from the whole.
4. adopting the FS framework (Nyéléni, 2007, 2015) as an analytical tool, in correlation with this dialectical perspective, provides the opportunity to apply an integrated approach to examine the conceptualisation of agroecology and its praxis. This means that a framework which has been proposed by a plurality of actors (also involved in the conceptualisation and development of agroecology) and which recognises the political ontological nature of agroecology, can be tested in its coherence between theory and practice, in practice (Bhaskar 2008; Gramsci, 1971). Moreover, the historical development of the FS framework - its moving and transformational nature, as well as its contradictions (Fairbairn, 2011; Patel, 2011; Méndez, Bacon and Cohen, 2013; Schiavoni, 2013; Alonso-fradejas *et al.*, 2015; Desmarais, Claeys and Trauger, 2017; Pimbert, 2017, 2018) across different geopolitical spaces - can be integrated in the understanding of how agroecology contribute in the construction of FS's vision (Nyéléni, 2007). Therefore, exploring its different manifestations in time and space.

2.2 Dialectical Historical Materialism and Dialectical Critical Realism

Each science has its specific ontology, epistemology and methodology which sets conditions, formal and a priori, for scientific activity to happen (Bhaskar, 2015). Hence it is paramount to establish the ontological and epistemological foundations on which the research rests. It provides an account of "what the world must be like, for knowledge, under the descriptions given it by the theory, to be possible." (2008:191). Moreover, the above is crucial if the theoretical and practical assumptions on which any science is grounded, are to be refuted or verified, therefore expanding its field of knowledge (Burawoy, 1990). Similarly, Bhaskar's Dialectical Critical Realism argues that the primal conception of the philosophical assumptions can enhance the realisation of the intrinsic emancipatory aspect of science (Bhaskar, 2008). The philosophical assumptions on this research are grounded in the dialectical perspective, specifically based on Marx's DHM and Roy Bhaskar's DCR.

The concept of dialectic has a long lineage in philosophy and the philosophy of sciences. It goes back to Aristotle and Hegel, with the subsequent diversity of views of Hegel's dialectical

position (change, contradiction and connection found in everything) (Bhaskar, 2008), by leading philosophers and theorists such as Kant, Marx and those who re-appropriate or critiqued Marxist's dialectics such as Habermas, Foucault, Gramsci, Mao Tse-Tung and Bhaskar to mention a few (Tse-Tung, 1937; Sayer, 1979; Burawoy, 1990; Bellamy-Foster, 2000; Walker, 2001; Ollman, 2003; Bhaskar, 2008). It is also the basis for non-Marxist authors such as the philosopher Alfred North Whitehead who had his own reflections on dialectics in his 'Process and Reality' (1978). Acknowledging this, the concept of dialectic used in this research is chiefly rooted in Marx and Bhaskar's interpretation, appropriation and evolving conceptualisations of Hegel's Dialectics, which developed into their Dialectical Historical Marxism and Dialectical Critical Realism. Considering the extensive work of both thinkers, the focus here is primarily on: Roy Bhaskar's "philosophical critique of the contemporary human sciences - The Possibility of Naturalism" and the analysis of dialectics in his "Dialectic: The Pulse of Freedom". And Marx's method, dialectical historical materialism, which is primarily based on the reconstruction, presentation and re-appropriation of Marx's dialectics and overall dialectical method by contemporary authors.

Bearing in mind that Marx did not elaborate his method in a specific piece designed for that purpose (Sayer, 1979; Walker, 2001) therefore it is important to highlight that the understanding and use of his approach is permeated by the perspective of the selected authors - amongst the many - who have undertaken the task of collating, interpreting, analysing and some bringing it into revolutionary praxis, both in full or in part. These authors are Jose Carlos Mariategui (1928 and Mariategui's Complete Works: Anthology (Vanden and Becker, 2011)), Wladimir Lenin (1966), Marta Harnecker (1969), Antonio Gramsci (1971), Sayer Derek (1979), Michael Buroway (1990), Bellamy-Foster (2000), David Walker (2001), Ollman Bertell (2003), and Luis Guillermo Vasco-Uribe (2003). This also includes Mao Tse-Tung work 'On Contradiction' (1937). The following sections present an overview of Marx and Bhaskar's developments on dialectics.

2.2.1 Marx's dialectical historical materialism

Marx promised once to elaborate on Dialectics, but he never wrote it (Ollman, 2003; Sayer, 1979; Walkers, 2001). Therefore, the Marxist dialectical approach must be mainly abstracted within the course of Marx's explanations of his own theory (Sayer, 1979; Buroway, 1990; Ollman, 2003). The presentation of what he meant with this concept and its development within the dialectical historical materialism method comes from interpretations of both his enquiry process in the study of the capitalist system and the presentation of this process. The method was not a conceptualisation prior, to or after, that of Marx's study of the capitalist mode

of production but was developed during and within the process of his enquiry (Harnecker, 1969). As Marx himself acknowledged "the general result at which I arrived and which, once won, served as a guiding thread for my studies." (Marx in Buroway, 1990:779). Marx's understanding of dialectics is fundamentally characterised by a conception of reality's constant change and transformation. This principle led Marx to ascertain that any change comes from within rather than from external elements (Ollman, 2003). That is to say that reality (what exists) is intrinsically containing the elements that bring about change, including its own demise. Marx asserted "…it [the dialectic] includes in its understanding of what exists a simultaneous recognition of its negative, its inevitable destruction; because it regards every historically developed form as being in a fluid state; in motion, and therefore grasps its transient aspect as well, and because it does not let itself be impressed by anything, being in its very essence critical and revolutionary" (Marx, 1976:103).

Regarding Marx's reflection on the internal principle of contradiction propelling change, Mao's analysis of contradiction - with his historical legacy of the concept of contradiction and antagonism, which Joseph Liu traces back in Chinese Confucianism and the Tao of Lao Tze (Liu, 1971) - expands the understanding contradiction not only as internal propulsor of change but also that contradiction is changeable in itself from being the principal contradiction to become an aspect of that contradiction. Thus Mao, somewhat in a similar fashion as Gramsci, explain that eventually the principal contradiction is not only at the level of the structure (economy) but also can be place in the superstructure (Tse-Tung, 1937). This adds another layer to the concept of contradiction, and it is that aside of internal forces propelling change there is also external forces (Ibid).

Ollman begins his interpretation of Marx's method by stating, that from one angle dialectic is understood as a "way of viewing the world" and from the other "a way of thinking" (2003). He continues by explaining that as far as Marx is concerned, dialectics "restructures our thinking about reality by replacing the common-sense[13] notion of "thing". with notions of "Process" and "Relation" (Ollman, 2003:13). It is crucial to highlight that for Marx the term "Relation" refers to system or structure (that is reality) but also its condition and relation as such (Ollman, 2003). Structures or systems - Relations - happen in time and space - hence their historical connotation; therefore, reality is historically determined (Walker, 2001). Part of reality is its history, not just the historical context of the thing (Marx and Engels, 1968).

[13] Not to be confused with the philosophy of common-sense as described by Gramsci (1971)

Following from this, Marx's ontological premises are: a) 'reality' or the world is characterised by its internal relations: both between its parts and the parts with the whole. Moreover, "..these parts are expandable, such that each one in the fullness of its relations can represent totality" (Ollman, 2003:139); b) The premise of ontological realism or materialism is that human nature emerges from and depends on the natural order (Marx in Bellamy-Foster, 2000). The world is real and exists apart from us, whether we experience it or not (Marx in Ollman, 2003). This last statement should not be confused with plain empiricism, insofar as both ontological premises - internal relations and materialism - are mutually dependant. Regarding this, Ollman recalls from Marx that reality is not a collection of unrelated things or events (2003). This means that it is not humanity or the natural order (nature) per se which gives the ontological characteristic but the relation, that is the human-nature and human-human relationships and processes even though those relations are not always evident to sensorial experiences (Harnecker, 1969:177).

Based on this ontological premise, Marx develops his epistemological position, as the systems and historical double movement approach. In order to know reality - conceiving it as a complex structure of relations - that which is not evident needs to be brought to the fore, so that it can be cognised (Harnecker, 1969; Ollman, 2003). This is when Marx defines dialectics, from an epistemological point of view, as the abstraction process of finding relations and processes within the whole (Ollman, 2003). This way of viewing and thinking about the world puts the emphasis on finding the relations between parts of the whole - that is reality - and the relation of the parts to the whole. Relations come to light through a process of abstraction. This does not mean a process of mental activity detached from the empirical reality but on the contrary the process of abstraction has different levels of analysis of the reality. This is precisely Marx's critique of Hegel's idealist analysis departing from the idea (abstraction) to study the reality (Harnecker, 1969).

In its historical perspective the process of knowing, epistemology, departs from the present to find out about the past, and from the past to find out about the future (Ollman, 2003). In other words, what happened in the past for the present to become what it did? (Ollman, 2003/163). This is done through a process of dialectical abstraction at three levels: abstraction by extension, by generality and by the vantage viewpoint as explained by Ollman (2003). Moreover, Marx's conception of dialectical epistemology reflects his philosophy of praxis (Gramsci, 1971), which became a key part of his dialectical method, albeit included in the later phase of his work (Walker, 2001; Ollman, 2003). A key aspect of Marx's dialectics is his understanding of human agency - and nature - agency regarding change, "From being a passive observer of development, as in Hegel, the individual has become the actor whose

daily life brings it about" (Ollman, 2003:43). Marx sees humans as changing the world they study and not simply passively reflecting it (Marx and Engels, 1968). Figure 2.1 presents a schematic and synthetic outline of Marx's dialectical method.

Figure 2.1: Summary of Marx's dialectical method (prepared from Ollman (2003) and Walker (2001) and note on contradiction according to Mao Tse-Tung (1937))

Premises of the Marxist dialectical method
1. Ontology: Philosophy of Internal relations and materialism.
2. Epistemology: Finding relations and processes within the whole, through abstraction process or in other words, focusing or shining light on a particular part of the totality or system, is done in three levels: the level of extension, the level of generality and from the vantage viewpoint. These levels are not exclusive or following any order but can be mutually supportive. a) *Abstraction by extension:* e.g. analysis of the phenomenon at a certain time and space, b) *Abstraction by level of generality* : which includes seven levels of generality or planes of comprehension: 1. About a person and situation e.g. Joe; 2. What is general to people, their products and activities e.g. Joe as engineer; 3. Everyone who share that activity in period, this is in itself a mode of production such as capitalism; 4. Class society; 5. Human society; 6. Animal world; 7. The most general level of all, that is our qualities as a material part of nature. c) *Abstraction by establishing the vantage viewpoint* : Looking at the phenomena from different angles for instance the State as an instrument of the ruling class, but also as a structure that responds to the requirements of the economy, as an aspect of the mode of production itself. (Ollman, 2003:100).
3. Enquiry: Technique of Critique (Walker, 2001).
4. Exposition of the study.
5. Praxis: political action (theoretical and practical) – strategy.
Guidelines for research
1. Think about the world in terms of processes and relations.
2. Do not treat things as isolated, static, and unchanging, but as mutually dependent and internal relations.
3. Incorporate change and interaction in abstractions.
4. Proceed from study of the whole to study of the part.
5. Study systems before history: studying the present, then the past and projecting major social contradictions from the past to the future, focusing on processes occurring across time and space.
6. Look for and trace relations of contradiction, identity and difference, interpenetration of opposites, and quantity and quality. Contradictions as mutually supporting but also mutually undermining. There is principal contradiction and principal aspects of that contradiction which can interchange places (Tse-Tung, 1937).

2.2.2 Bhaskar's dialectical critical realism

Bhaskar's definition of dialectic is developed through an in-depth analysis of the notion of ontology and its relation to epistemology. In doing this Bhaskar strongly opposes the attempts to ignore ontology and reduce it to epistemology, or treating them as equivalents, it what he named as the epistemic fallacy. From his critical realist point of view, reality is a priori to any type of knowledge. It is necessary to have a referent of what is reality in order to know it. Reducing ontology to an epistemological attribute, reduces reality to anthropocentric attributes, that is to say "sense-experience and other human attributes" (2008:4). Alongside

this reduction, is the fact that reality is seen only as the positive attributes - the visible by the anthropocentric epistemic process - leaving aside what Bhaskar calls a “sea of negativity or absence” (2008:4). That sea is part of all that exists but is not evident either because it is outside of human consciousness or because it is not at the empirical or actual level. This hidden or real dimension is the deepest attribute of reality, the interplay of relations and processes that structure it.

This is related to the idea that there are deep mechanisms, manifested in the form of processes and relations, in action underneath of what is visible to the human senses. These relations and processes have an intrinsic notion of movement, therefore generating change. As far as Bhaskar is concerned these relations and processes are of contradictory nature, similar to Marx’s position. However, Bhaskar’s dialectical relations are “..not always sublatory (or supersessive), let alone preservative; nor are they always characterized by opposition or antagonism. On the contrary, many are characterized by ‘mere connection, separation or juxtaposition.” (2008:3). Contradictions represent a state of duality or polarity in which absence is not only in terms of a gap, or reality not known, but also the absence-negative of totality or fullness. For instance, the absence of health, or well-being, or harmony as well as the absence of absenting agency, that is the absence of the power of transformation. As far as there is polarity, there is contradiction. This notion of contradiction is played out in the realm of relations and processes in the structure, encompassing dialectical relations between the parts and the parts with the totality. Each part differentiated and interrelated and at the same time a part of the unit and constantly in motion, driven by the contradiction. The attributes, of structure, differentiation and changeability are what define Bhaskar’s stratified dialectical notion of ontology which are dialectically related with the “four-planes of the social being” (for more on this and his seven ontological levels see Bhaskar (2008). This ‘being’ is “a four-planar conception of developing human nature in society, embedded in non-human but partially socialized nature”. Figure 2.2 presents the ‘four-planes of the social being’ or human nature.

Figure 2.2: Bhaskar’s ‘four-planes of the social being’ (2008)

a. plane of material transactions with nature: material transactions between humans with nature, representing unity and differentiation.
b. plane of inter-personal intra- or inter-action: human to human relations, social interaction between people. Relationship based on the notion of duality and power relations. In this plane the class relations and other master-slave relations are crystallised. This is the plane of interpersonal interaction which expands into social interaction in the next plane.
c. plane of social relations [social structure, institutions]: social relations sui generis, defining the level of social institutions.
d. praxis or transformation of the self: the individual internalisation and personification of the other three aspects above and the self-awakening for transformation.

The demand or the imperative necessity of filling the ontological gaps-absences and finding the structure's hidden mechanisms, is related to the dialectic as epistemological path. In this sense "dialectic depends upon the art of thinking the coincidence of distinctions and connections" (2008:166). This brings to the fore, the concept of relations, also present in Marx dialectical philosophy of relations. However, Bhaskar is quick in arguing, that it is not only internal relations but also external relations which need to be considered. This to an extent relates to Mao's reflection on the role of not only internal relations but external factors in social change. Which relates to the notion of internationality and connection of national affairs with those of the world pondered by Mao (Liu, 1978).

Dialectics as epistemology is a way to find and fill the gap through open-ended processes and relations, that at the same time create new open-ended realities, in Bhaskar's rhetoric, is the fourfold polysemic idea of 'product-in-process and process-in-product". This is the dynamic never-ending process of "absenting constraints or absenting illnesses" (2008:164). Bhaskar explains this briefly as follows: dialectic (1) starts with an ill (perhaps a social ill), a want, or an omission; (2) it remedies this ill (absenting of the original absence); (3) This process runs into obstacles, and (4) it overcomes these obstacles.

This dialectical process is the art of thinking with an intrinsic notion of dialectical contradiction as dynamo of conceptual and social change - the social transformative action. In this way, dialectics is defined as: "absenting the absentive agency, or as the axiology of freedom" (Bhaskar, 2008:164). Axiology of freedom as far as agency is sine-qua-non for the absenting of absences, in other words the transformational power. Similarly, agency in this sense can be understood as the exercise of overcoming the dialectical contradiction of two Powers within the 'four-planar social being', or human nature, that is: "power-1, as the transformative capacity intrinsic to the concept of agency as such, and power-2, as the transfactually efficacious capacity to get one's way against either (i) the overt wishes and/or (ii) the real interests of others. Understanding power-2 in its plurality or the generalized master-slave type relationships. These are relationships from class and gender to age and ethnicity, relations of exploitation, domination, subjugation, oppression, repression and control, whether maintained directly or indirectly, by force, ideological legitimation and/or surveillance" (2008:241-274).

Drawing from the overview of both DHM and DCR above, two ontological and epistemological aspects are retrieved for the construction of analytical framework used in this research, presented in Figure 2.3

Figure 2.3: Ontological and epistemological premises of FS-A-D

a) the ontological stratification represented in the "four-planes of the social being" (described in Figure 2.2) predated by two notions of Power, one related to agency and the other to master-slave relations as defined above.
b) the dialectical principles of interrelation and interdependence of elements and the totality (and its externalities as argued by Bhaskar), the notion of processes as an element of the structure, constant change within the double movement of system and history and contradiction as the dynamo of change - e.g. social change.

These premises are now combined with Marxian political economy and agrarian studies to analyse the concepts of agroecology and its relation to FS, thus addressing the gaps outlined in chapter 1. Following this, the full analytical framework for the research is presented. The attention is now turn to the section covering the concepts' analysis.

2.3 Conceptualisation and definition of agroecology

Despite several attempts to define agroecology, there is currently no consensus on its definition (Méndez, Bacon and Cohen, 2013; Nyéléni, 2015; Pimbert, 2017, 2018b; Loconto and Fouilleux, 2019). Agroecology has emerged as an evolving social-natural construct which at its core denotes the intentionality of change. The type of change and who asserts this has varied historically and manifested in the process of its conceptualisation and definition (Gómez, Ríos-Osorio and Eschenhagen, 2013; Rosado-May, 2016; Astier *et al.*, 2017; Pimbert, 2018; Loconto and Fouilleux, 2019). Mendez, Bacon and Cohen (2013) propose that the evolution of the definition of agroecology has taken different directions, as far as it concerns the scientific conceptualisations of it. Indeed, it has taken multiple directions reflecting differences in world views, outside the scientific community, and levels of power influencing the debate around its definition (Nyéléni, 2015; Pimbert, 2017; Loconto and Fouilleux, 2019). It also has different expressions depending on the geopolitical setting and its relation to the type of modern nation-State e.g. capitalist or socialist States and the global para-State governance structures.

Two landmark debates encapsulate, to an extent, insights, and a general overview of the process of definition of agroecology. One, is the most recent institutionalised debate involving representatives of government and global governance institutions at the FAO (FAO, 2015; Loconto and Fouilleux, 2019), the other is in the social movement's arena, La Via Campesina's International forum for agroecology (Nyéléni, 2015). These debates are also an integral part of a wide diversity of practices and theory-making at various times and levels, both locally and nationally. Moreover, the interpretation-conclusions arrived by Loconto and Fouilleux and LVC, about the content and form of the actors' narratives in the debates, are in themselves a

source of insight about the different characterisation of definitions that are currently being disseminated.

From these two landmark debates, the FAO and LVC, four points are highlighted which serve as pointers for analysing the process of defining agroecology and to present the definition applied in this research. 1. Agroecology refers to a historical and multidimensional socio-natural construct. 2. It concerns a great diversity of actors holding and exerting varying degrees of power at different levels within the framework of the modern nation-State and the global governance structures. 3. The definition of agroecology is in process and ever-changing, illustrating its stratified ontological and epistemological dialectical nature. These three aspects lead to a fourth, namely that at the heart of agroecology there are dialectical contradictions, both apparent and obscure, with ongoing attempts to resolve or maintain them.

2.3.1 The historicity of agroecology and the history of its definition

Several reviews have been produced on the trajectory of the conceptualisation and actual definition of the term agroecology (Buttel, no date; Hecht, 1987; Dalgaard, Hutchings and Porter, 2003; Wezel and Soldat, 2009; Wezel *et al*. 2009; Gonzalez de Molina, 2013; Guzmán and Woodgate, 2013; Mendez, Bacon and Cohen, 2016; Rosado-may, 2016; Loconto and Fouilleux, 2019). These reviews are heavily influenced by abstractions contained in the earlier definitions presented by two scientists: Altieri (1995) and Gliessman (1998) for whom agroecology is the application of ecological concepts and principles to the design and management of sustainable agroecosystems. Both propose that agroecology is a science which focuses on ecological elements but should also include socio-economic aspects. Although defined as a science or scientific discipline, their conceptualisations are not explicit about how this science approaches the subject of study in its totality (Altieri, 1984, 1989, 1991, 1995). For instance, what philosophical assumptions and/or methodologies can be applied that cover both its natural and social elements.

Moreover, while the natural aspects of agroecology (e.g. technologies and soil management) are extensively studied and explained, the social aspects are barely included in the definitions. These are sometimes presented as socio-economic and from a technological angle e.g. impact of the use of modern technologies in agriculture. Other times equating socio-economic with culture or with the human dimension (Francis *et al*., 2003). And some other times expanding it to include cultural, economic and political aspects (Sicard and Altieri, 2010; Gliessman, 2016, 2018; Rosset and Altieri, 2017). Furthermore, while there is still debate

about which type of science agroecology actually is, the general assumption inherited from these definitions is that it is strongly rooted in natural sciences - agronomy and ecology (Buttel, no date; Hecht, 1987; Altieri, 1995; Dalgaard, Hutchings and Porter, 2003; Francis *et al*., 2003; Altieri and Nicholls, 2005; Wezel and Soldat, 2009; Altieri and Toledo, 2011; Gliessman, 2015; Mendez, Bacon and Cohen, 2013; Rosset and Altieri, 2017). In this perspective the tendency is to lean heavily towards consolidating agroecology within the science as the hegemonic knowledge system (Wezel and Soldat, 2009; Wezel *et al*. 2009). Its consolidation within science is seen almost as a yardstick to measure agroecology's development and success (Dalgaard, Hutchings and Porter, 2003; Wezel *et al*., 2009).

Notwithstanding the difficulty in conveying what Dalgaard, Hutchings and Porter (2003) call the hard (agroecosystem) and soft (interaction of human systems with the biophysical) elements of agroecology in one science, these authors (and others supporting their view e.g. Wezel and Soldat, 2009; Mendez, Bacon and Cohen, 2013; Francis *et al*. 2003) contend that agroecology meets the standards of positivist scientific paradigm. The argument is based on testing agroecology against Merton's view of scientific tenets: "the four sets of institutional imperatives - universalism, communism, disinterestedness, organized scepticism - [that] are taken to comprise the ethos of modern science." (1973:270). While Merton's view is basically an idealistic[14] version of the overall principles of the positivist's philosophy of science, (Empiricism and testability, Explanation and prediction, Causations and laws, Value-Freedom, Unity of science and View of philosophy (Walker 2001:105-110)), and Dalgaard, Hutchings and Potter (2003) interpretation is an even more flexible and adapted version, they are fundamentally of a positivist perspective. In this manner agroecology has been categorised as a science with a positivist philosophy of science perspective, although the latter not openly stated but rather presented as a given assumption. Dalgaard, Hutchings and Potter (2003) purpose that agroecology meets Merton's four principles, yet several inconsistences are evident as presented in Figure 2.4. Despite these authors efforts to confine agroecology as a science within the positivist's scientific tenets, it is evident that there are questions that still require answers. Their referencing of a "dialectical approach" (2003:48) to deal with the problem of different disciplines is almost a call to revaluate their argument, at least in light of a different philosophical perspective[15]. In addition, acknowledging that "the barriers to interdisciplinarity are mainly cultural and political not technical, and lie deeply embedded in the way science has developed, these barriers present the major obstacle to the development

[14] Using idealistic in the sense of "idea" in Hegel's term in opposition to the real and/or actual reality in critical realists' terms.

[15] These authors referred to the dialectical approach in one sentence at the end of their review without contextualising it with the logic of their overall argument. This approach was aimed at dealing with the problem of having multiple disciplines (e.g. interdisciplinarity) in a hierarchical situation.

of agroecology" (2003:49). Following the positioning of agroecology as a positivist's science, a wave of scholars' publications carries the same perspective for about two decades. Buttel's (c.d) characterisation of agroecology into various agroecologies (ecosystems agroecology, agronomic agroecology, ecological political economy, agro-population ecology and integrated assessment of multifunctional agricultural landscapes) and how these apply in natural and/or social sciences it is also an expression of the challenges manifested by Dalgaard, Hutchings and Potter (2003).

Figure 2.4: Dalgaard, Hutchings and Potter (2003) use of Merton's principles

1."Universality": science should be open to contributions from all regardless of their background. "The only things that should wither, and be excluded from science, are ideas and theories not meeting with experimental verification or observation" (Dalgaard, Hutchings and Potter 2003:42). Although there is an assumption that both social and natural are subjects of science, it is assumed that both are "observed-experimented" in the scientific logic - analytical perspective of prediction and control - which leaves out, by default, aspects of reality that are not "observable" or subject to experimentation. Another reason used to prove that agroecology meets the principle of "universality" is that one of its attributes is that "it can be very broad and may deliberately involve other stakeholders, so bordering in being a socio-political movement". Hence the inconsistency with point three (value free) below is not addressed.
2. "Communism": for Merton was extended to the sense of "common ownership of goods, as they are accessible to the public" (1973:273). Dalgaard, Hutchings and Potter re-name this principle as "communalism". Agroecology meets this because the scientific outcomes are delivered to the public in the broadest sense. This is exemplified by scholars' willingness to share their findings and published them. The assumption is that there is a level playing field for all those producing and disseminating knowledge and its appropriation-ownership. It also assumes that there is a commonality of the means of communication and access to it. For instance, between oral and written traditions and languages which are not part of those typically accepted in the publishing sector.
3. "Desinteredness": which Dalgaard, Hutching and Potter present as "non-prejudiced and repeatable". This principle as presented by Merton deals with the issue of neutrality or the value-free in science. Regardless of the authors attempt to present this issue in a different way, one of the core and heated discussions among those conceptualising about agroecology is its political nature (Gonzalez de Molina, 2013; Guzmán-Sevilla and Woodgate, 2013; Nyéléni, 2015). In addition, this neutrality contrasts sharply with the principle of "universality". If it fits the latter, that is political, it cannot be claimed that it is neutral.
4. "Originality": is met by agroecology through striving for interdisciplinarity. This is presented as a 'new' (original) way to deal with the socio-economic aspects. As far as Merton presented the principle, it can be related to the topic of the unity of science. And subsequently, the problem of how to study the diversity of agroecology's 'objects' within the parameters of natural positivist sciences, thereby submitting the socio-economic aspects to the rule of natural sciences. Invoking interdisciplinarity as such is nothing original, in so far as there is not clarity which philosophical tenets are applied in those other sciences. Interdisciplinarity is not used to find a different perspective on the whole 'object' of study but to address a problem of communication between sciences and how to communicate to decision-makers such as Dalgaard, Hutching and Potter state.
5. "Organised scepticism": based on the premise of deductive reasoning (departing from and proving null hypothesis). Although accepted that this principle is more challenging for agroecology - in fact is not fully accomplished - is still considered that agroecology meets the principle.

In this line of thinking, Wezel and Soldat's (2009) article about the origins of agroecology, as a term and how it became a science, is to an extent a consolidation of those challenges as the norm rather than a problem that needs to be resolved. The article makes generalisations about the origins and development of agroecology based on a partial view of history and a methodological approach that favour this point of view. Rosado-May's (2016) review on the transcultural origins of agroecology exposes for example the exclusion of relevant historical information and methodological bias. For instance, excluding information from some countries and publications during the period considered, while including others whose work was outside this period. Similarly, it takes isolated comments from sources without contextualising their full discussion, to back up assumptions that are in contradiction to what the author referenced is conveying. This obscuring of parts of the full phenomenon studied is partly what Marx called, flat abstractions. That is presenting a historical account from one viewpoint, in this way blurring the focus and using time and space inconsistently therefore presenting a partial and superficial version of reality (Ollman, 2003). The generalisation, purposed in the article, that agroecology since its origins was adopted as a clear and direct connection to the sciences of ecology and agronomy, is misconceived. It arguably comes from a partial view of the sources referenced. The assumption that both Klages, who was not using the term agroecology in his studies (1942) and Bensin were referring to the same content overlooked the key fact that they had different conceptions and aims in the use of ecology in agriculture. The following quote from Klages's "Ecological crop geography" (1942) referring to Bensin's view of agroecology serves the purpose to identify the content of their research and different views:

> "Bensin proposes the term "agroecology" to apply to detailed studies of commercially important crop plants by the use of ecological methods. He proposes a systematic collection of data so that the main agricultural regions (agrochoras) of the world and the characteristics of local cultivated varieties of important crops (chorotypes) may be described and recorded by the employment of standardized methods and by a prescribed and uniform terminology. It will be observed that Bensin deals only with the physiological environment of crop plants to the entire exclusion of the social environment." (Klages, 1942)

Their differences in the use of ecology in agriculture are relevant in the conceptualisation of agroecology. The point made by Klages, about the exclusion of the social environment is still a key concern regarding how to deal with the double nature of the now called science of agroecology. Moreover, Bensin's use of the term agroecology paradoxically refers to the contentious political issue of using ecology to achieve standardised methods across the globe for commercial crops. The different use of the term - and application of ecology in agriculture

- by Bensin and other authors such as Klages, reveal the historicity of agroecology, as a socially constructed subject, therefore political. Wezel and Soldat's homogenisation of the sources' views support the perspective that agroecology from its origins (at least from the genealogy of their historical analysis) was a settled matter or without contradictions.

Wezel *et al*. (2009) article based on the same thinking, characterises agroecology as a science, as a set of practices and as a social movement, which has become almost a way of defining agroecology by scholars. This conceptualisation has been disseminated by some scholars without critique and others making fundamental critiques about its content, methodology and conclusions (Rosado-May, 2016; De Molina, 2013; Sevilla-Guzman and Woodgate, 2013; Mendez, Bacon and Cohen, 2013). The Wezel *et al*. argument that there is "certain confusion in the use of term" (2009:10) and Francis and Wezel that "multiple interpretations and diverse uses of the term agroecology complicate understanding and communication…" (2015:485), can be interpreted as the desire to maintain the fallacy that there are no contradictions at the heart of agroecology. Contradictions which have been carried out across time and used by social actors differently to exercise their power in the development of agroecology towards opposing ends as argued by (Levidow, Pimbert and Vanloqueren, 2014). From this point of view, the choice of conceptualising agroecology as a science, a set of practices and a social movement, is an expression of that power. The logic of the conceptualisation continues to be based on adding up elements (voided of their historicity and historical subject) which apparently appear as separated and which need to be joint or are connected only because of external influences or abstractions.

Wezel *et al*.'s option to divide agroecology into apparently separated topics has implications, for the notion of agroecology, as a science, for the subjects of which agroecology works with and for the emancipatory power of both. The division as such, is not a new idea, it is an abstraction that reflects to an extent the Klages and Bensin's views, and which are later carried forward by Altieri and Gliessmans' definitions. The division was evident even before the 'new field of research' became a science. From an ontological point of view, the reality that Bensin and Klages were researching had different but interrelated levels, biophysics and social, that they decided to cognise differently and separately. Gliessman's later acknowledgement that ecology should focus on food systems (2015) rather than only in the agroecosystem level (as purposed by Altieri), is not different to the view of positioning agroecology in the remits of natural sciences but stating that the human or social dimension of agroecology should be included - as Klages had argued before. The fact is that Gliessman carries on with the separated view of the biophysical from the human in its ontological nature. From this point of view the transformative praxis, by default the human transformation, as Marx and Engels put

it (1968), was artificially divorced from the theoretical knowledge of the 'new scientific field'. In this sense the philosophy of praxis of agroecology was de-rooted from its start. A point also made by Sevilla-Guzman and Woodgate (2013) and Gonzalez de Molina who refute Wezel *et al*.'s separation of agroecology as a science from its political nature.

Wezel *et al*.'s key contribution in presenting agroecology as three separated (sometimes joint) aspects is that it makes evident the intrinsic political nature of agroecology, as phenomenon and as a science. Although, it is not their purpose, they make visible the power-interests and contradictions on where agroecology has been established. It makes more explicit the negation of its historicity (Hecht, 1987; Guzmán-Sevilla and Woodgate, 2013) and the negation of historical subjects of knowledge, as Rosado-May (2016) exposes. These issues can be explored through the following points: First, by rooting agroecology's origins in the USA and other northern countries' institutions and European scientists, explicitly posits that science is the producer of knowledge. Moreover, the ownership and validation-recognition of that knowledge is in the hands of institutions-scientists and their host countries, and not in, and by, the communities where this knowledge is constructed (Wezel and Soldat, 2009; Wezel and Bellon, 2018). Considering the uneven geographical distribution of power - both financial and political - in research institutions, it is not surprising that the data presented by Wezel *et al*. is primarily focused on published articles in European countries and USA. History is made-told according to the lenses of who is disseminating. However, as Wolf (1982) argues the "people without history", do have history. And this is intricated with that of the Europeans in diverse and multiple complex manners (Rivera-Cusicanqui, 2012). Second, arguing that the "set of practices (technological application)" of agroecology is mainly allocated to Latin America; and that their use is "to improve traditional or indigenous agriculture in developing countries" (Wezel and Soldat, 2009:4), carries on with the negation of the subjects of knowledge. This time doubling the connotation, not only they have been voided of their power to produce knowledge, but they have become recipients of adapted and new knowledge (knowledge which was based on their own knowledge in the first place). And third, the "social movement (the political vision)" element expressed as the rise of social movements in the 1990s, neglects the entire historical context of capital production and accumulation and the resistance to it by communities associated with agroecological studies. Moreover, the consequences of what it meant for their knowledge and survival mechanisms (Batalla, 1996; Guzmán-Sevilla and Woodgate, 2013; Kay, 2015). Equally important, it obscures the political power of science, as a State institution, and how this is exercised in the conceptualisation and overall development of agroecology.

Mendez, Bacon and Cohen (2013) in an attempt to encapsulate agroecology's conceptualising perspectives, asserts that there are two predominant views in the debate about the definition of agroecology. They call them different perspectives of agroecology or 'agroecologies' that coexist. "One tends to exclusively apply agroecology as a framework to reinforce, expand or develop scientific research, firmly grounded in the Western tradition and the natural sciences". The second perspective is one "developed from firm roots in the sciences of ecology and agronomy, into a framework that seeks to integrate transdisciplinary, participatory, and action-oriented approaches, as well as to critically engage with political-economic issues that affect agro-food systems." (Ibid:7-6).

Sevilla-Guzman and Woodgate (2013) and Gonzalez de Molina (2013) in this second group argue for a sociological and transdisciplinary perspective. Their approach advocates for an agroecological science that includes the political aspect as intrinsic to it. They, however, adopt a different understanding of political. Sevilla-Guzman and Woodgate (2013) from a Marxist perspective associate agroecology to politics in the sense of power relations, social class antagonism and contestation of capitalism. Their definition of agroecology "promotes the ecological management of biological systems through collective forms of social action, which redirect the course of coevolution between nature and society in order to address the "crisis of modernity."[16] (Ibid:33).

Gonzalez de Molina, understanding political as the "politics of governability that is, the control and governance of a social group settled in a specific territory" (2013:50), argues for political agroecology. This author states that as a new branch of agroecology, political agroecology's role "is producing knowledge that makes possible the establishment of institutions and social movements favourable to the development of agrarian sustainability" (Ibid:56). From a Polanyian (2001) perspective taking the State as the political power that regulates the market and social forces, the role of the science of political agroecology is to navigate within the government system. Its role is to "design and implement institutions… design policies and to organize social movements" through democratic systems (Gonzalez de Molina, 2013:51). This position still presents agroecology on one hand as a science, albeit 'political', and on the other hand 'practices', as in Wezel *et al*.'s (2009) conceptualisation. In a similar Polanyian perspective, authors who originally positioned agroecology in a technological and

[16] This is to be achieved by systemic strategies ...to change [the] modes of human production and consumption that have produced this crisis. Central to such strategies is the local dimension where we encounter endogenous potential encoded within knowledge systems ... that demonstrate and promote both ecological and cultural diversity. Such diversity should form the starting point of alternative agricultures and the establishment of dynamic yet sustainable rural societies (Sevilla-Guzmán and Woodgate 1997, 93–94)

management approach are now calling for agroecology to include political action (Gliessman 2016, 2018) or for “political agroecology” (Rosset and Altieri, 2017). These arguing that being political is as a path to prevent agroecology being co-opted by institutional discourses focused on technological issues (Rosset and Rosset, 2017).

2.3.2 The stratified nature of agroecology

Reflecting on the trajectory of the conceptualisation and definition of agroecology as a science, it involves relationships and processes of dependency and interconnectedness between human and natural realms. Moreover, drawing from Bhaskar’s argument that although human is emergent from nature, it cannot be reducible to it therefore cannot be studied in the same way (Bhaskar, 2008). This composition of two intrinsically interrelated and at the same time different ‘objects’ is the problem that is still unresolved. If agroecology is a science what type of science is this one that has a combined ‘object’ of study? Besides, if each science has its ontology, epistemology and methodology (Hartagar in Bhaskar, 2008; Ollman, 2003; Walker, 2001), how is this reconciled/expressed in epistemological and methodological terms? These aspects which are in the background of the conceptualisation of agroecology, keep pressing for resolution. They are relevant matters as they determine what is the reality and how knowledge is produced in agroecology, and consequently how reality (human and nature) is transformed.

There are three interrelated issues in the conceptualisation of the double nature of agroecology and how to address it from a science point of view. First, although it is recognised that agroecology has social and natural elements, they are ontologically assumed as unconnected and static parts. In Bhaskar’s (2008) terms, its ontology is transformed into a flat ontology. This is by a) disconnecting their elements, for instance separating or isolating the technological and material aspect from the social aspects and considering the production process as comprising only the technological management of agroecosystems (e.g. soil and pest control management) (Altieri, 1984, 1991). b) neglecting emergent factors underneath those material aspects (e.g. power relations in a class-driven State-society) or aspects which are not visible as far as they are not known and are not evident or visible at the actual and empirical domains (e.g. technological production or economics as in the empirical terms of putting goods into the market). And c), by neglecting emergent factors and the notion of totality and movement that rise from processes and relations at the heart of agroecology, it denies and/or obscures the possibility of change and transformation. An example of how this flat ontology manifests can be examined through reviewing the concept of production that has

been proliferated since Altieri and Gliessman's conceptualisations (for this review-example see Figure 2.5).

Figure 2.5: A review of agroecology's flat ontology using the concept of production as an example

The concept of production in the science of agroecology, can be associated with the classical liberal economy point of view. As in this model the sphere of production is related primarily to the technical material production (Ollman, 1998; Harnecker, 1969). That is the technological management of agroecosystems (e.g. soil management, pest control management). As Altieri and Nicholls state: "agroecology is the scientific basis to address the production by a biodiverse agroecosystem able to sponsor its own functioning" (2005:99). This technological management has been known as the agroecology's principles*, and agroecology has been almost entirely associated to these principles by generations of scholars, NGOs, government officials and global institutions (Altieri, 1995; Gliessman 1998; FAO, 2009; IAASTD, 2008; HLPE, 2019; World Bank, 2008). In this frame of ideas, drawing from Marx understanding of production, social relations of production that are intrinsic to material production are stripped out or rendered invisible (Ollman, 1998). These include the social division of labour and the collective sense attach to it; the class division (within the State-civil society) between producers and the owners of the means of production and how this division is generated and reproduced in the production process (Harnecker, 1969). By masking or neglecting the historicity of the social relations within the production sphere, the historical context in which this happens is also stripped out. This has further implications as geopolitical differences are also ignored. For instance, different characterisation and reasons for using agroecological production or different class relations depending on the type of State where the concept is applied, e.g. capitalist or socialist countries.
Moreover, treating production as simply material production of goods obscures the fact that such production is related to wealth generation and to how this wealth is shared (Ollman, 1998). It also neglects the social relations that are involved in the technical-material process of production, such as power relationships in terms of who decides how, what, and when to produce and which technologies to use. This is usually determined by the power of wealth, which is not visible from the single viewpoint of production. Besides that, the creation of wealth takes place interconnectedly to other spheres of food systems, the material production-processing, the distribution and consumption. It also takes different shapes according to how the capital-State nexus exist and its relation to the market (Brenner et al., 2014; Tilsey, 2018b). After all the production of goods is not only for use-value but mainly exchange-value as Marx argues (1973).
Detaching the sphere of production from distribution and consumption and placing the last two in the realm of social and economic dimension, put both producers and consumers in the same category in the realm of distribution. This despite differentials of their input in production of wealth and accumulation (Ollman 1998). For instance, a peasant, landless labourer, worker or corporate capitalist (disregarding their class differentiation) are categorised both as consumers (even in socialist States as explain later). Similarly, all other consumers appear as equals, exercising at the apparent level, an equal power of choice in the market, despite that revenue is accrued differently in the process of production (Ollman 1998). Moreover, this differentiation of revenue accrual, created also through the process of exchange in the market, is in itself a process of production of relations that is not made visible from the technical mechanical production of goods** (Ollman, 1998; Wood, 2002). It is in this sense that, the division of the entire production-distribution-exchange-consumption of food systems into separate domains, the technicalities of production on one hand and socio-economic aspects on the other, obscures the process of production and accumulation of capital. And that this accumulation, engenders power relations (class struggle – master-slave relations) that are reproduced widely in society or in the 'four planar social being', in Bhaskar terms (2008).
***** The core principles of agroecology include recycling nutrients and energy on the farm, rather than introducing external inputs; enhancing soil organic matter and soil biological activity; diversifying plant species and genetic resources in agroecosystems over time and space; integrating crops and livestock and optimizing interactions and productivity of the total farming system, rather than the yields of individual species (Gliessman 1998). Sustainability and resilience are achieved by enhancing diversity and complexity of farming systems via polycultures, rotations, agroforestry, use of native seeds and local breeds of livestock, encouraging natural enemies of pests, and using composts and green manure to enhance soil organic matter thus improving soil biological activity and water retention capacity" (Altieri and Toledo, 2011:588). ****** For more on this process of making things appear as they are not, or mystification of the sphere of production and distribution, as Ollman name this (see Ollman, 1998).

The second issue in determining how to deal with the double subject of agroecology follows from overlooking the ontological aspect. The definition of its ontology is left aside, and it becomes an epistemological problem. Thus, by applying the undifferentiated premise of unity of science and methods, social sciences' methods are used to cover those aspects that natural sciences do not cover. In addition, there is the assumption that the epistemic relation is that of 'subject to object', and that there is only one epistemic subject. In this approach to agroecology both humans and nature become the 'object' of study, rather than differentiated living subjects with their own perception of reality - perception which for some societies - it includes a notion of nature as a living being and not an 'object' (Estermann, 2013; Rivera-Cusicanqui and Sousa-Santos, 2014; Solon, 2014).

The third issue that appears in the context of fixing agroecology as a positivist science, is the political aspect of agroecology and/or whether this science is, or is not, 'political'. The epistemic relation subject-object not only negates one epistemic subject but also its own world view and develops a power relation of master-slave relation (Bhaskar, 2008). Moreover, the historical context of the subject of agroecology is also of power relations, albeit rooted in different perspectives. For instance, the contradiction between capitalist agriculture and small-scale sustainable agriculture (in the jargon of Gliessman, Altieri and Gonzalez de Molina) or in the historical formation and accumulation of agrarian capital and class struggle (as Sevilla-Guzman and Woodgate have posited). As such the issue of whether agroecology, as a science, is political or is not, and the ontological political attribute of agroecology are two topics that often are confused. And more importantly, the latter being overlooked or treated as an epistemological problem.

Mark Tilzey's dialectical and critical realist approach to political ecology in his analysis of the relation between capitalism and food, environment and social resistance, provides insight which can be applied to the issue of agroecology dwelling on different sciences. His approach argues for a "synthesis of the social and natural sciences by retaining the social specificity of politico-economic systems whilst recognizing their inescapable biophysical constitution and dependencies" (2018b:3). This presupposes the premise of an integrated but differentiated ontology of the social-nature relation. Integrated in that social systems, humanity, is constituted by nature but at the same time nature is partly mediated and transformed by social relations and structures of power within a historical context. And differentiated in that biophysical elements are not always subject to human transformation and elements of human nature are outside the remit of nature, for instance semiotic constructions in regards of power dynamics. In this context Tilzey argues for an integrated notion of the sciences, but he is prompt in stressing that it cannot be confused with treating the ontological natural and social

elements as hybrids throughout. As, in this hybridity, power relations as emergent properties and social agency can be lost.

Drawing from this perspective, a related notion of epistemology can be explored, as Bhaskar (2008) argues the epistemology is intimately related to the ontology. This will allow for an epistemology that also addresses the differentiation between subjects of knowledge, power relations between them and their cultural constructions. Understanding culture in Geertz terms as the "set of patterns-organized systems of significant symbols for the governing of behaviour. The accumulated totality of such patterns is not just an ornament of human existence but-the principal basis of its specificity-an essential condition for it. Culture rather than being added to the human is part of the production of human in itself." (1973:45-49). Drawing from these points, it can be argued that the context of socially constructed power relations, related to both the natural and the social, is what gives agroecology its intrinsic political nature. Understanding of "political" as used by Tilzey in his differentiated political ecology, "as the explanation of social dynamics by reference to historically and spatially specific power, class, and property relations." (2018:5). Also understanding power relations in Bhaskar terms, as the two-levels of Power: power of domination-control (in master-slave relations in which class is one of them) but also the power to emancipate the self.

2.3.3 Agroecology as 'a social movement'

Despite the intense political struggle by peasant and Indigenous communities taking place during the conceptualisations of the term agroecology and the science of agroecology did not permeated them. Moreover, up until the official appearance of LVC and its official statement regarding agroecology in 2015, there were no definitions or conceptualisations about agroecology presented by peasants or Indigenous people - outside the scientific or NGO sphere. The direct voice of these actors in the debate on agroecology's definition is absent. Arguably, they are represented by scientists who have studied them and NGOs working with them. In this respect, Holt-Gimenez and Altieri comment that this might be because agroecology was associated more with NGOs than with social movements (Holt-Giménez and Altieri, 2013).

The inclusion of the concept of social movement into the conceptualisation of agroecology, (either as a separate or joint aspect) by authors who had already established it in the remit of Western science has profound and strategic implications in relation to the fate of the peasantry and Indigenous people. First, the science of agroecology enters the social movement's milieu as the provider of scientific knowledge for alternative sustainable modes of agriculture. The

fundamental epistemological and ontological contradiction of subsuming subjects of knowledge and their ontologies into science is normalised while claiming that this science is built on traditional knowledge. It consolidates the tacit message that traditional knowledge needs the science's rubber stamp to be validated, albeit not in its totality and less with its political struggle. This contradiction also involves another contradiction, which is that now the people (albeit without a knowledge system) must fight for agroecology.

Secondly, it builds a theoretical narrative in which agroecology, becomes 'political', since it is embedded into the social movement discourse, but carrying the original technocratic message. In this logic, there are assertions such as that: "Agroecology is providing the scientific, methodological and technological basis for a new 'agrarian revolution' worldwide"[17] (Altieri and Toledo, 2011:587). The technological and scientific view already emphasised in the official discourse continues without fundamental internal critique, hence instead of addressing the issue of the political practical and theoretical content of the science of agroecology, or elaborating its vision of change, these are allocated to the 'social movement' element. This strengthens the ambivalence, which some have described as the division between reforming or transforming the capitalist industrial food system (Levidow, Pimbert and Vanloqueren, 2014). The division between the reformists, progressives and the radicals (Holt-Giménez and Shattuck, 2011) become an external condition to agroecology rather than being an internal-intrinsic contradiction generated and carried forward by its rooting and first conceptualisations. The problem of deciding which path, reform or transform, is somehow shifted to the social movement (for more on this see later the section on FS), leaving untouched the role of the scientific community on this matter.

2.4 Food Sovereignty-Agroecology in unity-in-difference

Following decades of agrarian movements' struggles, the launch of La Via Campesina's FS framework in 1996 was the consolidation of the peasant's political manifesto to address power imbalances in food and agriculture, which had affected society in a multidimensional manner (Wittman, Desmarais and Wiebe, 2011). Although at the actual and empirical level appears primarily as the realm of food and agriculture, at the real and structural level, it also addresses issues of governance and social-property relations at national and international level (e.g.

[17] The definition presented by these authors is: "Agroecology is both a science and a set of practices. As a science, agroecology consists of the 'application of ecological science to the study, design and management of sustainable agroecosystems' (Altieri, 2002). This implies the diversification of farms in order to promote beneficial biological interactions and synergies among the components of the agroecosystem so that these may allow for the regeneration of soil fertility and maintain productivity and crop protection (Altieri, 2002)." (Altieri and Toledo, 2011:588).

democratization of the United Nations). Ostensibly, its focus is rural areas (in terms of location) and agriculture (in terms of sector), but a close look of LVC's political demands shows a critique of the structural scaffolding of capitalism. It crosscut politics of geography, governance, social-property relations, master-slave relations (e.g. class-based, racism and patriarchy), and all development sectors. This is expressed in the original seven principles that encapsulated FS: food as a basic human right, agrarian reform, protecting natural resources, reorganizing food trade, ending the globalization of hunger, social peace and democratic control (LVC,1996 in Windfuhr and Jonsén, 2005).

Later in 2007, during the Nyéléni Forum for FS, the framework was broadly defined as:

> "Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers. Food sovereignty prioritises local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability. Food sovereignty promotes transparent trade that guarantees just income to all peoples and the rights of consumers to control their food and nutrition. It ensures that the rights to use and manage our lands, territories, waters, seeds, livestock and biodiversity are in the hands of those of us who produce food. Food sovereignty implies new social relations free of oppression and inequality between men and women, peoples, racial groups, social classes and generations." (Nyéléni, 2007:9).

The seven initial principles were reworked into Six Pillars with some changes added (see Appendix: 2.3). Despite these changes the fundamental political position, the transformation of structures of exploitation and change of economic model is maintained. "We are fighting against Imperialism, neo-liberalism, neo-colonialism and patriarchy. FS requires the establishment of another economic model, one which is based on cooperation and solidarity between individuals and peoples and places biological and cultural diversity above competition and specialization. FS also requires a transformation of social relations so that there is equality between social classes, races, sexes and generations…" (Nyéléni, 2007:10,43-42). The forum consolidated the call for FS from a wider spectrum of actors and

stressed the struggle for women's rights as a key thematic and action area (La Via Campesina, 2008). This research uses the Six FS Pillars, acknowledging that the concept of FS is not static but changing in a dialectical manner. This means that the evolvement process of the FS framework is not free of debate and contradictions. It is also key to state that despite the changes from the Seven Principles into the Six Pillars, the FS still conserve its overall transformational aim, as explained before. Moreover, the Nyélén Forum has expanded its inclusivity to diversity of actors, despite the tensions and power relations that this can generate (2007).

The concept of agroecology figures in the 2007 Nyéléni Declaration as a mode of farming alongside other practices such as artisanal fisheries, pastoralism, hunting and gathering. The term is used in the same fashion as it was used by scientists in the 1970s and 1980s thus referring to ecologically sustainable farming (Altieri, 1995 and Gliessman, 1998). At the same time the declaration is unequivocal that "food sovereignty is rooted in environmentally sustainable production and harvesting, under local control and honouring traditional knowledge." (Nyéléni, 2007:42). The defence and promotion of local knowledge (with emphasis on women and Indigenous people as key holders of knowledge) is at the heart of the discussions and a point of action. In this context, the FS framework re-appropriates the term agroecology as part of it, as a mode of farming.

Bearing this background in mind, the conceptualisation of agroecology as part of the larger FS framework is taken into "a struggle against imperialism, neoliberalism, neo-colonialism and patriarchy" (Nyéléni, 2007). As a peasant member of LVC explains: "The concept of FS emerged, evolved and was redefined in the cauldrons of practical political and social struggles… class struggle that confronts this model of society…the ongoing struggle of constructing another mentality in practice… for autonomy" (Masioli and Nicholson, 2010:35). In this context the conceptualisation and definition of agroecology moves from actual and empirical technocratic issues towards the real structures that engender the capitalist exploitative power relations and the power of contestation (Guzman and Woodgate, 2013). Contestation of the capitalist mode of production and, at a more profound level, the struggle against the imposition of an entire world view based on capitalism and its project of modernity (Nyéléni, 2015). This is explicit in the definition put forward by LVC's International Forum on Agroecology declaration in 2015:

> "Agroecology is a way of life and the language of Nature, that we learn as her children….Agroecology is political; it requires us to challenge and transform structures of power in society"… Agroecology is the answer to how to transform and repair our material reality in a food system and rural world that has been devastated by industrial

> food production and its so-called Green and Blue Revolutions… We see agroecology as a key form of resistance to an economic system that puts profit before life….Our peoples, constituencies, organizations and communities have already come very far in defining Food Sovereignty as a banner of joint struggle for justice, and as the larger framework for Agroecology…" (Nyéléni, 2015).

Contrary to agroecology's original setting, the technological element is not the primal focus but one that is deeply embedded in distribution of natural capital, political power exercised by different actors within the State, development strategies that address issues of distribution of the means and production and the creation of capital through means of production in the food systems and not only the distribution or the consumption of food (La Via Campesina, 2008, 2016). Agroecology in the LVC's definition has intrinsically a political position, in comparison with previous conceptualisations (Altieri, 1995). The fundamental demand within FS is about power to decide access to means of production and distribution systems, in other words power to decide socio-economic organization and governance structures.

From the LVC's definition of agroecology as part of a new world vision in the larger framework of FS, the debate about its conceptualisation must address contradictions in power relations and question the legitimacy of definitions. This includes internal power relations and decision making in social movements. Moreover, arguably it challenges that the science of agroecology address as its own, the broader challenges facing the FS framework. Until the LVC's conceptualisation of agroecology the original definitions of the topic (Altieri, 1995; Francis *et al*., 2003; Wezel *et al*., 2009) had not changed. On the contrary they are more entrenched within scholars' publications which present agroecology as a science. In this sense, the science of agroecology's narrative on the technological and scientific basis for management of food systems has permeated social movements but the emancipation of peasant and Indigenous knowledge has not, as it continues to be regarded as a science, albeit built on traditional knowledge.

The push for contextualising agroecology within the social movement's milieu came primarily from groups and social movements such as La Via Campesina. In the context of the LVC movement and other social movements struggling for FS, the process of concertation between scientists and social movements has been a transformational process for both. Some scientists understand that there are other ways to know and produce knowledge, and that the scientific epistemologies needed to expand in order to cope with other ways of producing knowledge (Norgaards, 1989; Méndez, Bacon and Cohen, 2013; Pimbert, 2018b). This process continuous to be the praxis in theory, by challenging the status quo of existing

universal ‘truths’, theories and assumptions based on partial accounts of reality, and above all the contestation of neo-colonial and imperialist practices of co-opting and appropriating knowledge (Freire, 1996; Tuhiwai-Smith, 1999; Rivera-Cusicanqui, 2012).

Furthermore, the participation of scholars (as well as NGOS) in LVC debates has been an issue of concern. This has not been fully explicit and highlighted as a problematic issue in the whole process of conceptualisation and definition of agroecology. Holt-Jimenez and Altieri posit that “Partly due to its academic and NGO-based history, discussion on agroecology has largely resided within the progressive trend. As such, agroecology is exposed to financial and political co-optation by the food regime’s reformist projects” (Holt-Giménez and Altieri, 2013:97). This is an important topic as some proponents of agroecology are not keen on joining agroecology to the FS framework, although since 2007, “the food sovereignty framework gained more ground within academic community internationally” (Alonso-Fradejas *et al.*, 2015:433). Some scholars advocate for presenting agroecology and FS as a joint project and others are prepared to isolate agroecology from FS in order to be inserted in the official discourse, as it has been called, to stabilise agroecology (Loconto and Fouilleux, 2019). This reflects the complexities and challenges of the process-in-progress of the construction of FS. A synopsis of the themes of discussion among the different actors can be retrieved from the thematic areas discussed in the FS Nyéléni Forum and resonating with the FS Six Pillars (Nyéléni, 2007), Edelman *et al*.’s presentation of ten topics-questions and Alonso-Fradejas *et al*.’s four areas stemming from hundreds of academic papers. These broader themes are:

1. Transition to a new worldview paradigm or society.
2. The sustainable mode of production and decommodification of nature and social relations.
3. The notion of diversity understood this as diversity of actors, cultures, languages, knowledge and governance systems.
4. The field of governance with issues such as ‘whose sovereignty’, the role of the State, social movements, and individuals in constructing governance, and notions of ‘scale’.

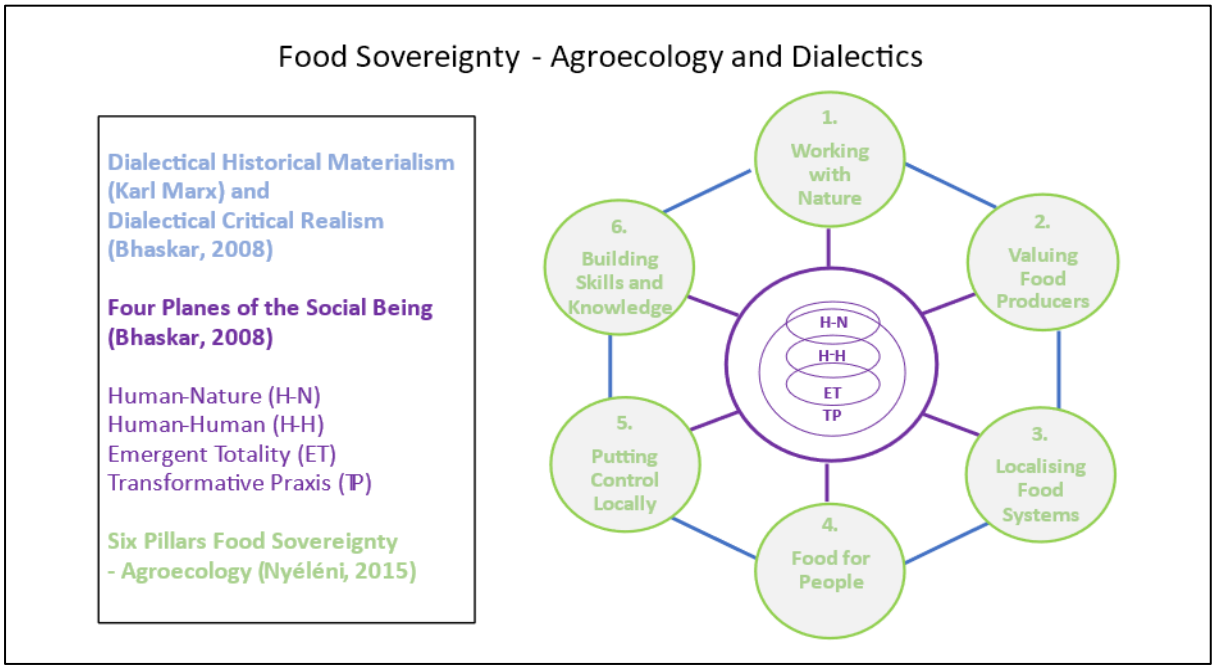
This brings the analysis of the concepts of agroecology and FS to a close. The analysis has addressed the ontological and epistemological gaps around the conceptualisation of agroecology and its relation to FS. Out of this analysis, the research adopts the perspective of understanding FS and agroecology as a unity-in difference. This includes the notion of the necessary contradiction in the process of transforming master-slave relations, and overall, in the changing nature of reality (Bhaskar, 2008). This perspective resonates with the LVC understanding of agroecology as integral part of FS.

The philosophical assumptions and analysis of the concepts explained until now in this chapter has given the basis for the analytical framework constructed for the research, which is presented below.

2.5 Food Sovereignty-Agroecology and Dialectics: analytical framework to study food systems

Drawing from the philosophical assumptions and the dialectical analysis of the research concepts FS and agroecology, this section presents the overall structure of the FS-A-D analytical framework, with its three interrelated elements, as presented in Figure 2.6.

Figure 2.6: Research Analytical Framework: Food Sovereignty-Agroecology and Dialectics



Source: Author

First element: the philosophical underpinnings based on DHM and DCR (blue elements in the diagram)

Ontology: Reality is stratified and in constant change or understood as open-realities in which the social and natural are in unity-in-difference. Reality is made of processes and relations, which are not always evident but need to be brought to the fore. The principles of interrelation and interdependence between elements and these with the totality are conveyed in the FS-A-D framework through the blue lines in the diagram and the stratification is presented through

both the ‘four-planes of the social being’ at the centre of the diagram and the Six FS Pillars, which are embedded in the web of dialectical relations.

Epistemology: The path of knowing reality in its changing and stratified nature is through a dialectical method in which different levels of abstraction are applied to cognise the parts and processes constitutive of the stratified reality. This process of abstraction seeks to find connections, contradictions, and change in each of the FS Pillars and in its relation to the totality, then magnified and manifested in the ‘four-planes of the social being’. The process of abstraction is in other words the art of thinking dialectically.

The art of thinking dialectically**:** or what is called here the dynamics of the dialectical method involves the process of abstraction, a series of steps where time and space interact. This involves approaching reality in its double movement - systemic and historical. The historical view is not a lineal or teleological but a reflection and refraction in which the future is also part of history; to proceed from the present to the past and to project to the future; to apply different levels of abstraction to avoid flat abstractions; and to establish relations of quantity and quality across time.

Second element: Bhaskar’s ‘four-planes of the social being’ (purple elements in the diagram)

The ‘social being’ or human nature in the framework evidences the stratified ontology and the relation between structure and agency. The concept of ‘social being’ manifests the social and natural aspect of human nature (individuality and collective) with its intrinsic transformative attributes. Here it is key to emphasise that the ‘social being’ is adopted as Bhaskar presented it, that is, as integral part of the explanandum of his Dialectical Critical Realism and not as a separate concept (2008). Bearing in mind this, the use of the ‘social being’ as - seemingly - an individual element in the FS-A-D framework is to make more explicit the connection between the FS Pillars and a historical ‘social being’ that seeks transformation in its individual and collective level and in multiple dimensions. Moreover, it grounds and give coherence (structure) to the ontological and epistemological aspects of the FS framework. For instance, it recognises the differences between epistemological subjects, in the Human-to-Human relations (H-H) and the Emergent Totality (T). This is by establishing a vantage point where different subjects are considered in their uniqueness but interrelated nature. That is as individual and as part of a collective, while constructing institutions and culture. Thus, magnifying individual relations within the totality, relations that otherwise are aften isolated when studying separately each FS Pillar or separating FS from agroecology. For instance, the FS’s Pillar ‘Working with Nature’ which often is understood primarily as a biophysical or production elements of reality and estranged from the political and spiritual elements, thus

portraying a flat ontology, and obscuring social subjects with their political and spiritual agency. The latter are avoided through the dialectical interrelation between elements and these with the 'four-planes of the social being', thus structuring and at the same time changing the totality.

Third element: The FS' Six Pillars (green elements in the diagram)

Following the reflection from the previous steps, it is understood then that the Six FS Pillars looked through the lenses of the art of thinking dialectically and the planes of the stratified 'social being' manifest and consolidates the multidimensionality of processes and relations of the FS framework grounded on a socio-natural entity rather than purely as a theoretical construct. This is for two reasons: First, by the multi-level abstraction processes (abstraction of generality, vantage point and by extension as explained in figure 2.1) within the dialectical double movement, historical and systemic. Second, 'social being' stratification permits to understand the individual and collective as part of the totality. In other words, the multiplicity of actors in the FS can be understood both from the individual as well as from a social class and within the generalised master-slave type relations (as explained in section 2.2.2). The FS inclusion of several actors (peasantry, fisherfolk, food processors, consumers, rural and urban agrarian workers, with their age, gender, race, characterisation) is not skewed or singularised to the peasant, as an individual, or to a rural context.

Bearing in mind the above, the stratification of the 'social being' alongside with the FS Pillars and the historical element of the dialectical method, enhance the applicability of the FS framework, as an analytical tool to explore food systems regardless specificities of time and space. Therefore, it can be applied to study urban, rural, suburban food systems and across different geopolitical contexts, e.g., capitalist, and socialist nation-States and future possibilities of social formation. Food systems, within the dialectical historical analytical perspective of this research are conceived as stratified and historically bound realities as explained in Figure 2.7.

Figure 2.7: Food Systems: stratified and historically bound reality

Food Systems are considered first as a stratified social-biophysical structure within a system perspective. That is considering the individuality of elements but also the interrelations and processes between them and with the totality. As Sobal, Khan and Bisogni reflect in their integrated model to food and nutrition systems (referring to the relationship between food, agriculture, eating and health) that emerged out of their analysis of food system models (food chain, food webs, food cycles or food contexts), these models being narrow or adopting only particular vantage point of specific aspects of the entire system (1998). Drawing from these authors, food systems convey multiple dimensions-processes within the social-biophysical relationship involving inputs and outputs. Sobal, Khan and Bisogni present nine processes in the overall system: production, processing, distribution, acquisition, preparation, consumption, digestion, transport and metabolism. However, reducing

them to four food production, processing, distribution and consumption (1998:856). Similarly, Ericksen (2007), Zurek, 2006 in IAASTD (2009), Ericksen et al., (2010) and iPES Food (2015) refer to these four dimensions, including other processes such as packaging and retailing within them. Moreover, the systemic approach in this research is grounded in the dialectical relational approach between agency and structure which is immanent in food systems. A point that Ericksen (2007) touches upon in his food systems framework which is directly linked to food security, environmental change, and social welfare. However, its link to the concept of food security contradicts the notion of agency as the latter concept neglects the aspect of agency or power to transform*. The emphasis is put on one element, that is institutions, which supposed to mediate between the social and ecological dimensions (Ibid).
Second food systems in this research are understood as taking place in specific time and space, that is they are historical. This regardless of the tendency to universalise the concept of food systems by linking it to a specific context (politically, socially or economically). For instance, by using the theory-political assumptions of concepts such as food security (Ericksen, 2007; Ericksen et al., 2010) or mixing approaches such as sustainable intensification with agroecology, organic agriculture and permaculture in food systems (HLPE, 2019) without an extra level of critical analysis, therefore undertaking flat epistemic abstractions. The risk in doing this, is that rather than studying-transforming the food system, the goal is confirming-maintaining a political view or the status quo per se.
* of both the social and the biophysical aspect of food systems. This from the point of view that nature is a living being (Rivera-Cusicanqui, 2014) which manifest its power in a non-anthropomorphic manner, thus affecting the overall structure of the system.

Within the perspective of food systems explained in Figure 2.7, the ‘four-planes of the social being’ linked to the FS-Agroecology Six Pillars in the FS-A-D analytical framework helps to explore food systems as interrelated and open-ended realities in a historical context with an emphasis on establishing intrinsic connections and contradictions within Human-to-Nature, Human-to-Human, the Emergent Totality (or institutions and social values - this level not as a mediator between the social and natural - but as an emergent totality) with an emphasis on the Transformative Praxis permeating these planes. Moreover, it allows to use different theoretical approaches which are tested throughout and concomitantly with empirical information during the dialectical analysis. For instance, this research uses some Marxist theories which in the process of the research analysis are scrutinised regardless of these being proposed by Marx (bearing in mind his relation to the dialectical method used in this research). Another example is the analysis of the FS theoretical framework and food security as part of the study and not as theoretical dogma.

The use of the food production, processing, distribution, and consumption dimensions of the food system to support the collection of information in this research does not imply the neglection or isolation of the dialectical relations in these processes. For instance, the agricultural losses that crosscut production and processing or the waste across production, distribution and consumption. These and other processes and relations are brought to the fore through the analysis of each of the Six FS Pillars from the lenses of the dialectical method.

In this manner, the benefits of connecting the concept of the ‘four-planes of the social being’ and the FS Pillars with the dynamics of the dialectical method, within the research’s FS-A-D

are that: 1. The 'social being' magnifies the key element of the overall FS framework, this being, the agency of individual and collective actors at political, spiritual, economic, and social levels. It treats social institutions and its power and the power of individuals within them from a perspective of unity-in-difference. 2. In highlighting contradictions first through each FS Pillar, then plotting these through the 'social being' planes is evidenced the peak moments of social change in the past and present therefore providing vision for future patterns. 3. The overall analytical framework provides the chance to contribute to a critique of the FS theoretical stances and praxis from an inwards perspective, so to speak, therefore contributing to the evolvement of FS as a theoretical and practical tool. 4. Finally and as key element to highlight in the use in an embedded manner of the Six FS Pillars and Bhaskar's 'social being' concept, is the correlation between the FS framework's transformative aim and the Transformative Praxis (TP, represented in the figure as the outer sphere encircling the H-N, H-H and T)) of the 'social being'. The TP as the internalisation of the other three planes of the 'social being', is the geohistorical transformative agency (international causality) incorporating human praxis and reflexivity[18]. This praxis is the manifestation of the internal contradictions and the point of encounter of the other three in a non-hierarchical unity but differentiated manner. It is also the aspect that manifest the notion of constant open movement and changing nature of reality or what Bhaskar calls the Axiology of Freedom (2008). Also drawing from him, the fourth plane is when the 'social being' can transcend its own human nature as a spiritual being as far as individuals recognised being part of the totality as well as a totality in themselves. In brief, the 'social being' in this way helps to understand: first, the double nature (social-natural) of FS-Agroecology in a coherent and systemic manner rather than isolated elements; second, it helps to establish the level of transformative transcendence taking place in the reality studied, in this research the suburban agroecological food systems in socialist Cuba.

2.5.1 Steps in the application of the FS-A-D analytical framework

First step: from the general to the particular

This step involves two momentums: analysis of the present conditions, this is done with the Six FS Pillars as the theoretical ground and as the guiding path for the presentation in this thesis. It highlights the analysis of each Pillar through the dialectical method. As in figure 2.6, each Pillar is interconnected directly with other Pillars and indirectly through other Pillars through the planes of the social being.

[18] "In its most basic form it specifies the capacity of an agent or an institution to monitor and account for its activity" (Bhaskar, 2008:255).

Second step: from the particular to the general

This involves the historical analysis of the precedents that give way for the reality as it is in the present. The historical precedents are central part of the analysis, and not separated from it or taken simply as background. Using the art of thinking dialectically the historical analysis of the precedents of reality serves to understand the power relations and level of Transformative Praxis in the 'social being' in the current time and projections into the future.

Third step: establishing dialectical movements in the past and the present.

This is done by using the ontological premises of the 'four-planes of the social being'. This step reconvenes all the processes and elements of reality to bring to the fore the Transformative Praxis and insights for political action to overcome power master-slave relations by the self and collective transformational power.

Fourth step: projecting major contradictions, connections, and changes in the past and present into the future.

This is the last step and focus on retrieving the significant elements that manifest contradiction and change, therefore it presents a consolidation of all the other steps and elements in a spiral movement, projecting them into the future.

To end this section, it is crucial to highlight that the premises that guide the FS-A-D are the same that underpin this research methodology, which is presented in the following chapter, where the application of the FS-A-D in addressing the research aim is explained step by step.

Chapter 3
Methodology

This chapter introduces the research methodology. It first considers positionality, ethical, and consent issues around the research design process and the decision to adopt the transformative mixed methods approach. It then outlines the selection of the research geographical sites, research participants and data collection methods, and the collection, organisation and analysis of information through the FS-A-D analytical framework. A reflection on the limitations of the methodology and analytical method is given at the end of this chapter.

3.1 Positionality, ethics, and consent

This research was originally conceived, designed and carried out under the institutional structure of a scientific-academic enquiry in both the UK and in Cuba. The research was supported financially and institutionally by the Centre for Agroecology Water and Resilience at Coventry University in the UK, through a 3-year scholarship. In Cuba it was supported primarily by the National Institute of Agricultural Sciences *(Instituto Nacional de Ciencias Agrícolas* - INCA), through the Programme of Local Participative Innovation (PIAL[19]), with assistance from the Faculty of Agronomy in the University of Cienfuegos and the National Research Institute for Tropical Agriculture (*Instituto Nacional de Investigaciones Fundamentales en Agricultura Tropical*-INIFAT).

The original aim of the research proposal presented by the Director of Studies in the open call to select the researcher was 'to explore the extent to which peri-urban agriculture might contribute to the food security status of a nation'. Following my appointment as the researcher I adjusted the proposal to introduce the concept of Food Sovereignty (FS) and to position the political nature of the study. This entailed a review of the scope of the original proposal considering my positionality and the research ethics and consent requirements in the UK and Cuba.

3.1.1 Positionality

There is no such thing as bias-free or value-free in science. The values of the

[19] PIAL is a multi-actor initiative covering 10 provinces in Cuba, whose main purpose is to improve local and national food security and food sovereignty while improving the efficiency of integrated farming systems and quality of life, with gender and leadership equity of family producers. It has multiple international funders and has been running since 2000 (Ortiz-Perez, *et al*., 2015).

scientist/researcher determine inter alia the selection of topics, the standards of the enquiry and the conclusions; besides, these issues apply equally to social and natural sciences (being pure or applied) (Bhaskar, 2015). The question is then, how the values and bias are made visible in the knowledge production, or, in Haraway's terms, how knowledge production is accountable and transparent (1988). This transparency involves situating the researcher, the research, and the relation between these two. This 'situating' or 'positioning' describes the researcher's worldvision, his/her way of recognising what reality is and how to know it and transform it. Therefore, positionality relates to decisions on the philosophical underpinning, analytical framework, theory, methodology and methods, and the praxis embedded in the process of knowledge production. Bearing this in mind, the following describes some experiences which have shaped my worldvision, which have then influenced me as a researcher, and how I entered into relationship with this specific research context and research participants.

I was first fully conscious of my position in knowledge production when I decided to leave my law studies and to study anthropology at the National University of Colombia. It was a reflexive decision, both a self-ontological reflection and in relation to the collective. In other words, in relation to my political and class position regarding socio-political struggles in Colombia and how I could contribute to social change and to my self-transformation. These reflexive angles - the self and the collective/social - of untangling the values/bias that I bring to knowledge production relates to the notion of individuality and open-ended totality (Bhaskar, 2015) and to the notion of partial knowledge and multiplicity of subjects ('visions') held by feminists' thinkers (Haraway, 1988; Salleh, 2001; Crasnow, 2020b). As such, the self-reflection is connected-interrelated to the social context or to the open-ended totality within Bhaskar's concept of unity-in-difference (2008). These concepts unity-in-difference (Ibid) and the multiplicity of 'visions'-subjects (Haraway, 1988) were somehow not alien to me, even before my actual encounter with these thinkers' reflections. They were as an inner knowledge transmitted and socialised by my mother. The understanding of being one in connection with all (material and non-material physicality and social relations), with and beyond the five-sense reality, started with my mother's sharing/teaching her understanding/vision of the spirit world, the knowledge of the plants and dreams as healers, all these as an integral and empirical part of reality, not as an ideal world. This led me into years of research on practical magic in Bogota-Colombia trying to find methodological ways to approach what I had learnt at home empirically. Then my motivation to understand how all the levels of reality interact reached a more holistic level in my first ethnographic experience while living with an Indigenous community and later with my 3-year long ethnographic research-thesis (understanding how a shaman becomes knowledge (Romero-Vasquez and Arguello-SanJuan, 1998)) to graduate

as an anthropologist. In this process I learnt directly from Indigenous peoples in Colombia about their traditional knowledge systems, their world vision as well as their defence of autonomy and territory. Then I worked with displaced peasant communities, in a highly armed-conflict sensitive area of Colombia, supporting their struggles to recover their land and livelihoods through a food sovereignty programme in which returning to their land was a matter of life and death. These experiences forged in me a deeper sense of responsibility towards social transformation from the perspective of working with others, bearing in mind the multiple perspectives and power relations in the process of changing reality and its connection to knowledge production.

Thus, the positionality I brought to this research, has been shaped by a mixture of worldviews. On one side the world view of Indigenous people and from a peasant tradition as my mother passed on to me, and by my formation/education within Western science (from positivism to Marxist methods and theory since early years in my high school). Methodologically speaking I am also influenced by the praxis of *Investigacion Accion Participativa* and libertarian ethnographic methods, based on the works of Falls-Borda, Alfredo Molano, Paulo Freire and the invaluable teachings of the radical thinker and anthropologist Luis Guillermo Vasco-Uribe with his Marxist view of Indigenous knowledge and governance systems (Vasco-Uribe, 2003). This included critical analysis of the role of the researcher, the god-missionary approach of classical functionalist and structuralist anthropology and the colonial power relationship between the so-called minorities and the nation-State, in the context of Indigenous people's struggles for self-determination and autonomy.

My positionality on knowledge production and social change became more complex when I migrated into the UK and while undertaking this research in Cuba as well as in the process of writing this thesis. Being a migrant takes me to the non-static nature of positionality in the sense of reflexivity of the relationship between agency and structure (Jessop, 2005) in time and place as a historically determined reflexivity (Margaret Archer in Caetano, 2014). That is, the self-conscious act of monitoring one's own actions in relation to the capacity to transform the structure and in doing so changing oneself in a particular historical context. Thus, the researcher is both, insider-outsider, on a structural level. This relates to how much for instance I as the researcher am alienated (using Karl Marx's notion of alienation) from the process of reification and commodification (labour/researcher-product/research) and how much the internalization of the colonisation and mestizaje process has led me to perceive myself as an outsider or an insider to negate-obscure my identity in order to conform (Fanon, 1963; Rivera-Cusicanqui and Sousa-Santos, 2014).

Based on the above, my interest in this research was motivated by my commitment to contribute to the struggles of peasant social movements, Indigenous peoples, and local communities to build food sovereignty. There were, however, several aspects concerning me in this respect, of which three stood out. One was regarding how food sovereignty was to an extent separated/distanced from the discourse about agroecology. For instance, building awareness around agroecology (while working in the UK campaigning organization War on Want) among communities and decision makers in the UK was difficult, but it was even more complicated to talk about FS among progressive networks and groups working towards sustainable food systems, as there were more convoluted and blurred standpoints regarding FS and its links to agroecology. The second concern was the power differentials between movements in the Global South (e.g. members of La Via Campesina and independent peasant organizations) and NGOs and professional campaigners in the UK, in terms of defining the agenda when advancing FS. The third was related to socialism and its links to FS and agroecology. In this respect Cuba stood out in the literature as the country in which agroecology and FS had been adopted by a socialist State. Apart from my literature review on agroecology in Cuba, prior to embarking on this research, I had the chance to hear from a Cuban agroecologist about the Cuban experience on agroecology and food sovereignty when I invited him to a multistakeholder and cross-country debate in the UK in 2011, while I was working towards building the UK food sovereignty movement. I was extremely keen to understand the Cuban process, as (like many Latin Americans), I viewed Cuba as the bastion of socialism in the continent and was ideologically biased towards supporting it. Moreover, there was on my part a partial view of socialism in the country, primarily focused on the Marxist-Leninist perspective. This is partly because of distorted views in Cuba historiography and even more because of my 'low-risk' approach towards knowledge. This again relates to the 'fear of freedom' or the fear to face the status quo that Freire (1970) reflects - in other words, it is not easy to overcome internalised patterns as I explain in the researcher's learnings in section 3.7 below.

3.1.2. Ethics and Consent

This research was, from start, determined by UK and Cuban official protocols regarding scientific enquiries in a foreign country and by a foreigner respectively. Coventry University required formal ethics protocols and the research methodology to be developed by the end of the research's first year, thus an ethical authorisation was sought through INCA and granted by Cuban authorities. Ethics is a topic that has gained relevance for social sciences to ensure validation and above all, accountability, and respect for the rights of the participants in an enquiry (Brydon, 2006; White, Drew and Hay, 2009). It can be addressed from both a

procedural viewpoint and in actual praxis. The latter entails a reflexive attitude by the researcher when acting as an organic intellectual (Gramsci, 1971), as well as by social actors engaged in the research, i.e. the very people who are attempting to change their reality and who can be termed endogenous researchers (The DDS Community Media Trust, Satheesh, P.V and Pimbert, 2008). In this respect, I was concerned about the extent to which a participatory action research (PAR) and transdisciplinary approach could be applied (Freire, 1996; Fals-Borda, 2008; Nicolescu, 2010), as it would reflect the political vision pursued by advocates of agroecology and FS. Thus, to pursue ethics in actual praxis and achieve a participatory approach, the Cuban host institute was approached on my first visit to Cuba prior to the start of the research field work. However, although welcomed by the professor accompanying me in the research, there was no possibility of meeting relevant individuals until I was officially authorised to proceed with the research in Cuba (a similar protocol to the UK's regulation regarding foreign students).

In addition, securing consent for a foreigner to undertake research on agricultural issues in Cuba is a matter of national security, requiring approval by authorities such as the Ministry of Interior, directors of universities and the management of the National Association of Small-scale Campesinos (*Asociacion Nacional de Agricultores Pequenos* – ANAP Spanish acronym). To obtain this consent, the final methodology and data collection tools had to be presented and examined, and questions considered not pertinent to agroecology (e.g. earnings of producers) were removed. The 'consent' of producers was obtained through INCA once the selection of producers to be interviewed had been finalised. This consent required the researcher to be accompanied by an appointed person from INCA in all meetings with producers and all visits to *fincas*, *parcelas,* patios and cooperatives, hence a comprehensive participatory action research or transdisciplinary methodological approach was impossible.

Despite my interest in transdisciplinary methods, I conceded that the research and myself as researcher were bound by research protocols that did not originally envisage a transdisciplinary approach. Attempting to use a participatory approach illustrated the mixture of colonised, pragmatic, and self-transformational mentalities I was carrying (Fanon, 1968). I was caught in the contradiction of my mixed mentality on the one hand seeking power-balanced relationships in the epistemic process and on the other hand uncritically and by inertia neglecting the power relations between researcher and participants, for instance the fact that from start I designed the research without full participation of participants. This posed critical consideration of the nuances of the differentiation of participation in the most technical aspects (Pretty et al, 1995; Chambers, 1994) but above all it was a political concern. Carrying out research in Cuba as a foreigner showed me that making transparent the researcher's

positionality was more nuanced than an individual self-reflection. Moreover, it was beyond the researcher's desire-intention to be transparent or not, because my positionality was rigorously scrutinised/investigated by different levels of security and authorities. I was cross-examined regarding my identity (e.g., my dual nationality, Colombian and British), motives for undertaking the research and reminded that I could not freely decide who, when, where or what should be included in the research, as I or the latter could pose a national security threat. In turn, this impacted on some aspects of the research and my relationship with the participants, as explained in the following sections.

Considering the above, the research's ontological and epistemological foundations were re-viewed as well as the main research concepts, and this is reflected in the analytical framework adopted, the FS-A-D (explained in chapter 2), and by default the methodology. The importance of agroecology as part of the FS framework is considered in its full complexity, both as a theory and as an analytical tool. To do this, a critical analysis of theories is argued for, not to confirm or negate them per se, but to acknowledge that theory is dialectically changing as reality changes. Such an analysis enables understanding of a) the contradictions, changes, and tensions inherent in the construction of agroecology and FS, and b) how the joint concept of agroecology and FS is used to explore Cuba's Suburban Agriculture Programme (SAP) and its contribution to FS. Both aspects are relevant to address the aim of the research and its objectives. The review of the main concepts served to fine tune the questions posed in the research and to emphasise its exploratory perspective.

Decisions about the methodological approach were guided by the elements of the FS-A-D analytical framework. The methodology had to be consistent first, with the stratified ontology of FS-Agroecology which was a key premise of the research aim '*To explore the development of agroecology in suburban food and agricultural systems and its contribution to food sovereignty in Cuba in the light of the updating of the country's Socio-economic Model*'. Second, with the transformational aspiration of the FS-Agroecology framework. And third consistent with the need to address the research in its specific historical context, that is the specificities of Cuban Marxist-Leninist socialism.

Bearing in mind these points, the following considerations were pertinent regarding the selection of the methodology: 1. flexibility to engage participants at all stages, 2. inclusion of the transformational theory of social change of the FS framework, and 3. ensuring that the ontologically stratified reality (social and biophysical) studied in agroecology was counted as a dialectical unity embedded in a historical context. Hence a transformational mixed methods methodology was adopted, as explained below. The relation between the FS-A-D, the

methodological approach and the research aim, objectives and questions is presented in section 3.5.1 and Table 3.2 of this chapter.

3.2 Transformative mixed methods methodology

The mixed method approach is “research where the philosophical assumptions guide the collection and analysis of data and the mixture of qualitative and quantitative approaches in many phases of the research process… it allows the use of diverse methods to collect data and encourages use of different worldviews or paradigms” (Creswell, 2014:6-9). Further, it is “a transformative approach that holds that research needs to engage with politics of social change” (ibid:10). Similarly, Mertens explains that it involves “a philosophical approach that focuses on ethics in terms of cultural responsiveness, recognizing those dimensions of diversity that are associated with power differences, building trusting relationships, and developing mixed methods conducive to social change.” (2012:802). Based on these definitions and their resonance with the philosophical assumptions of the FS-A-D, transformative mixed methods rather than a broad mixed methods approach (Creswell, 2014; Mertens, 2012) was considered pertinent for this research, which in this respect engages from the start with a perspective of social change as pursued by the FS framework.

The mixed methods would also allow for comparison of different data but more importantly show how quantitative aspects of reality impacted on the overall outcome of how social actors assert their agency to transform their reality (Mertens, 2012). It would also help counteract problems of bias in collecting and analysing information and enable contrasting of past historical information and its impact in the present, for example from statistics not as background information but as part of the historical present.

3.3 Selecting research sites and participants

3.3.1 Selection of research sites

The selection of research sites and participants took place during the first days after arrival in Cuba, in March 2017. The researcher relied on the support of the director of PIAL, which was an important connection as this programme had local offices in almost all provinces and extensive knowledge of working with producers and local communities. This selection drew on Yin’s theory about case studies (2006), by considering the following two aspects:

a. Definition of the site, and the productive units to approach.

b. Deciding whether to have single or multiple cases, bearing in mind authorisations, time,

resources and considering the added value of having more than one site, whether to enable a contrast of situations or to cover research dimensions that another selected site did not have. Considering these two points and after conversations with researchers from PIAL and the research supervisor in Cuba, the sites' selection criteria was drawn up as follows:

a. Definition of the site

The first aspect considered was the definition of suburban agriculture adopted with the creation of the SAP (see Figure 3.1). According to that, the sites would be localities under the SAP's municipal plan, including localities surrounding cities, towns, small settlements, and groups of households. Also, it considered the interrelations within the food and agriculture systems - implied in the 'direct commercialisation' within the municipality stated in the suburban definition. It was therefore decided to take the municipality as the overall territorial unit and include the relations between rural, suburban, and urban within it. This perspective was also in line with the approach adopted in the research of exploring suburban food and agriculture as food systems across the territory as, explained in section 1.2.

Figure 3.1: Suburban Agriculture Definition

Suburban Agriculture is: "the production of food, forestry and other agricultural activities in the periphery of the cities with a 10km distance from province capitals and Manzanillo City (the second most important city in Granma); within 5kms distance from municipal capitals and about 2km distance around towns with more than 1,000 people which are not capitals of municipalities and surrounding areas of human settlement with less than 1,000 people or with a minimum group of 15 households. These parameters have been designed by the municipal project, to provide an agroecological and sustainable basis and maximum savings on fuel, wide use of animal traction and direct commercialisation, as far as possible." (MINAG-GNAUS, 2009).

The other consideration in defining the sites was the SAP administrative and geographic coverage (see Table 3.1). The SAP is a national programme operating in the 15 Cuban provinces and in 165 municipalities out of the total 168 (MINAG, 2009; ONEI, 2017e). Each municipal administration (including the politico-administrative entity, the Consejo Popular) prepares and implements their SAP's plan, adjusting to the local context the national SAP direction by MINAG and the National Coordination Group of Urban, Suburban and Family Agriculture (GNAUSF). According to SAP municipal plans, it can include surrounding areas in cities, towns, settlements, and groups of more than 15 households across the municipality as presented in Table 3.1. for those municipalities in which information was available[20].

[20] Through this research it was impossible to access the complete number of settlements for rural, suburban and urban municipalities nor differentiate rural, urban and suburban areas, or their use of land. However, there was access to the SAP plans in each of the selected research sites providing general information. For instance, differentiation between urban and suburban agriculture (see Table 3.1) and points of commercialisation spread

Table 3.1: SAP's administrative and geographical coverage

Provinces	Municipalites where SAP operates (165)	Consejos populares	Population per province and municipality	Settlements and towns with less and more than 1000 habitantes in SAP	Total land (Thousand has)	Arable Land (Thousand has)	Idle Land (Thousand has)	Urban agriculture (Thousand has)	Suburban agriculture (Thousand has)	Aquaculture reservoirs (Thousand has)
Cuba	Cuban municipalities 168		**11 181 595**		10984.4	3120.19	395.7			
			2 132 183		**72.8**	**16.6**	**0.5**			
	Playa				3.6					
	Plaza de la Revolución				1.2					
	Centro Habana *				0.3					
	La Habana Vieja *				0.4					
	Boyeros				13.5					
	Arroyo Naranjo				8.3					
	Cotorro				6.6					
	Guanabacoa				12.9					
	San Miguel del Padrón				2.6					
	Diez de Octubre				1.2					
	Cerro *				1					
	Regla				1					
La Habana	La Habana del Este	Alamar, Guanabo, Reparto Camilo Cienfuegos, Antonio Guiteras, Villa Panama, Cojimar, Boca Ciega, Campo Florido.	174 807	Alamar Altura, Alamar Playa, Alamar Este, Guanabo, Reparto Camilo Cienfuegos, Antonio Guiteras, Villa Panama, Cojimar, Boca Ciega, Tarara, Santa Maria del Mar, Campo Florido.	14.2	6.6	0.2	1.4	7.4	150has under production.
	Marianao	CAI los Angeles, Los Quemados, Pocitos Palmar, Belen, Zamora Coco Solo, Libertad, Pogolotti-Belén-Finlay, Santa Felicia.	134 994		2.3	0.2	0	0.4	0.4	4 has planned for production of 3 tons of alevines.
	La Lisa	Altura de la Lisa, Arroyo Arenas, Punta Brava, Balcon Arimao, Cano Bello 26 Valle Grande, San Agustin, Versalles Coronella.	145 023	Cano, Bello, Valle Grande, Juan de Dios Fraga La Concepción, Cruz de Piedra, Arroyo Arenas, Guatao, XX Aniversario, Punta Brava.	3.7	1.5	0	0.1	1.1	2 sources of water one with 8has.
			384 389		**374**	**231**	**12**			
	Bejucal				12	12	1460			
	Jaruco				26	29	799			
	Santa Cruz del Norte				38	28	2332			
	Madruga				47	27	643	445	6360	
	Nueva Paz				54	26	163			
	San Nicolás				23	17	2579			
	Güines				43	24	267			
Mayabeque	Melena del Sur				23	19	2072			
	Batabanó				25	16	643			
	Quivicán				24	14	753	28	4853	
	San José de las Lajas	Jamaica, Nazareno, San Antonio de las Vegas, San Jose Norte, San Jose Sur, Tapaste, Zaragoza.	81 002	Pedro Pi Viejo, Pedro Pi, Tapaste, Liberación, San José, Morales, Zaragoza, Perú viejo, Perú Nuevo San Antonio de las Vegas, Nazareno.	59	21	256	203.0	290.00	148has (ACUABANA).
			406 305		**419**	**290**	**35**			
	Aguada de Pasajeros				66	52	6			
	Rodas				57	47	4			
	Palmira				31	28	3			
	Lajas				43	36	3			
	Cruces				19	16	0.6			
	Cumanayagua				109	51	8			
Cienfuegos	Abreus				58	18	0.2			
	Cienfuegos	Guaus, Pepito Tey, Ventas del Rio, Caunao, C P Paraiso, Rancho Luna.	177 958	Cienfuegos city	36	42	9	1043	13.118	6has producing 90tons of fish.
				Guaus				40	502	
				Pepito Tey				18	235	
				Ventas del Rio				56	707	
Pinar del Rio	11		583 037		889	371	17			
Artemisa	11		514 332		400	251	0.5			
Matanzas	13		716 320		1179	522	35			
Villaclara	13		775 091		842	600	15			
Sancti Spiritus	8		463 844		678	472	32			
Ciego de Avila	10		435 326		697	429	22			
Camaguey	13		763 389		1539	1016	79			
Las Tunas	8		533 224		659	496	88			
Holguin	14		1 021 591		922	492	12			
Granma	13		817 763		837	513	28			
Santiago de	9		1 045 631		623	366	8			
Guantanamo	10		505 606		617	248	17			
Municipio Especial La Isla de la Juventud			83 625		242	39	9			

* Municipalities with no suburban land

Source: National Statistic Reports (ONEI, Cienfuegos 2017a, Mayabeque, 2017b, La Habana, 2017c, 2017d, 2017e, 2020) unpublished SAP programmes in municipalities of La Habana, Cienfuegos and Mayabeque (MINAG, 2017a, 2017b, 2017c, 2017d, 2017e) which were collected during field work.

across the municipality. Having said that, not all provide the same level of information, some present the division between agricultural programmes, and the specific settlements, whereas others only present a division of the amount of land used in urban and suburban agriculture.

b. Deciding over a single or a multiple case

The following aspects were considered:

- Guaranteed accessibility to the SAP, including physical access to localities, participants (food producers, processors, distributors and consumers/non-producers[21]), and administrative information of the programme by obtaining authorisation from authorities.
- Presence of agroecological *fincas* or production units, contrasting soil, climate and biodiversity conditions.
- Presence of INCA-PIAL or official accompaniment for the researcher in the province during the fieldwork.
- Researcher's capacity and logistics e.g. costs, transport availability, weather conditions, for instance in the case of the hurricane season where transport/mobility was more difficult.

Following these points, it was decided to have three sites in three different provinces out of the total SAP coverage. This included the option of working in a transect covering rural towns and their suburban areas connecting to small and larger cities. This would include rural towns in the mountain area. The overall reflection was that without aiming to impose generalisations, the data from three sites would allow for triangulation to identify dialectical relations such as convergences, juxtapositions and contradictions, as per the analytical framework. Moreover, the planned seven-month fieldwork would allow two months in each site-province, plus one or two months in case adjustments were needed.

After these considerations, the requirement that the researcher have official accompaniment was a key determinant for the final selection of the three sites. Therefore, these had to be in provinces where there was a PIAL or a university-research centre with capacity to accompany the researcher. Thus, the provinces of Cienfuegos, Pinar del Rio and Havana (which used to be named Havana City until 2011) were selected. In Cienfuegos there was the PIAL within the University of Cienfuegos plus there was the option of selecting a town in the mountain area. Pinar del Rio had the Experimentation Centre *Los Palacios* and offered the opportunity to select participants who had agroecological tourism intersecting rural, suburban and urban areas. And finally Havana had the highest population density with migrants from all over the country (ONEI, 2016), and therefore had the greatest food demand, receiving supplies from all the provinces. Moreover, it was an important part of the USAFP and the location of INIFAT

[21] This research uses the terms consumer and non-producer to designate food producers who also must access food that they do not produce and people who are non-producers. These terms refer to people who have access or not to means of production or want to have access but are unable to do so or only in restricted terms, therefore they must have other means to access food (e.g. social welfare or/and income).

where the coordination of the overall SAP was based (INIFAT, 2016). Later, Pinar del Rio had to be dropped due to an outbreak of chikungunya, therefore the province of Mayabeque was adopted instead, as INCA, the research's host university, is in this municipality plus several institutions servicing the SAP and overall agriculture in the country. Moreover, it offered the possibility of exploring the suburban area of the municipal's capital city connecting with smaller towns. After a preliminary exploration in Cienfuegos province including towns in the mountain area, these had to be discarded as official authorisation was not granted. Information about the coverage of the three provinces out of the total 15 (see Figure 3.2) and municipalities selected is presented in Table 3.1 with a breakdown of localities (some being cities, small towns, and settlements) showing the suburban land destined to agriculture (see Figures 3.3, 3.4, 3.5., 3.5.a, 3.5.b and 3.5.c). Within these provinces, Cienfuegos has eight municipalities, of which the Cienfuegos municipality was selected with its five settlements - including Cienfuegos City. Mayabeque has 11 municipalities, of which San Jose de las Lajas (SJDL) was selected. This has ten localities of which San Jose is one. Havana province has 15 municipalities of which three were selected: Habana del Este with five, Marianao with six settlements and La Lisa with eight.

Figure 3.2: Map of Cuba and its 15 provinces

Figure 3.3: Coverage of suburban agriculture in Cienfuegos municipality

Source: (Cienfuegos Planning Office in Moreno-Lorenzo, 2016)

Figure 3.4: Coverage of suburban, urban, and rural agriculture in San Jose de las Lajas municipality

Source: (MINAG, 2017b)

Figure 3.5: Map of Havana province and its 15 municipalities

Source: (MINAG, 2017a)

Figure 3.5.a: Coverage of suburban and urban agriculture in Habana del Este municipality

Source: (MINAG, 2017c)

Figure 3.5.b: Coverage of suburban agriculture in Marianao municipality

Source: (MINAG, 2017d)

Figure 3.5.c: Coverage of suburban and urban agriculture in La Lisa Municipality

Source: (MINAG, 2017e)

3.3.2 Selection of participants

The participant selection strategy combined two sampling techniques, purposive and opportunity sampling (Russell-Bernard, 2006). This was based on two variables: meeting the criteria of a representative sample but with flexibility to accommodate the Cuban context, so as not to make broad generalisations for the entire population but rather to provide a snapshot of the wider context (Russel-Bernard, 2006). Population in the three sites is: Mayabeque 384.389; Havana 2,132,183 and Cienfuegos 406.305 (ONEI, 2021). Both techniques proactively included women. The aim was to include equal numbers of women and men who were connected directly to food production, processing, distribution, and consumption as included in the food system concept chapter 2, Figure 2.7. This was followed up during the field work to ascertain reasons for accomplishing this aim or not and finding ways to deal with cases where it was not achievable and to incorporate this in the analysis of the information. In the end the selection of participants was primarily in the hands of the accompaniers of the researcher.

The purposive sampling technique (Etikan, Abubakar-Musa and Sunasi-Alkassim, 2016) allowed for the inclusion of two types of participants with specific criteria related to the research themes, (1) people engaged directly in food production, processing, commercialisation, and/or consumption, and (2) people representing the views of institutions connected to agriculture, research and development sectors.

Selection criteria for the first group included:

1. People involved in food production, processing, distribution in suburban areas.
2. Producers with several years' experience of practicing/building knowledge on agroecology, e.g. producers who had invented agricultural devices or practices and practitioners of organic methods.
3. Producers holding a high ranking within the USAFP's evaluation system.
4. Producers without prior knowledge about agroecology.
5. Researchers in science and practitioners of agroecological agriculture.
6. Consumers-non-food producers across the territory.

The criteria to select the second group included:

1. Agricultural extension service technicians, researchers, and senior representatives of educational/research institutions.
2. Decision-makers/government officials involved in policy making on food and agricultural systems.

3. ANAP representatives from the national and/or provincial offices.
4. Physical planning officials.
5. Members of PIAL (management and front-line coordinators).
6. Director of the USAFP and members of the GNAUSF
7. Members of non-governmental organisations such as the Cuban Association of Animal Production (*Asociacion Cubana de Production Animal* - ACPA) and the Cuban Association of Agriculture and Forestry Technicians (*Asociación Cubana de Técnicos Agrícolas y Forestales*-ACTAF), and ONEI staff.

Despite requirements for each of the participants to be officially approved by the relevant authorities, the researcher was allowed to live within the selected communities. This flexibility provided **opportunity** or **convenience sampling**, "a glorified term for grabbing whoever will stand still long enough to answer your questions…. The trick is to make them representative of what you want them to be. That's what turns a convenience sample into a purposive one." (Russel-Bernard, 2006:192). The opportunity sampling meant that some participants were almost self-selected and made up for when the purposively chosen participants could not be approached due to the outbreak of an epidemic, official restrictions, authorisation to visit some *fincas* not being forthcoming, the Hurricane Irma national emergency or other logistical changes outside the researcher's control. This opportunity sampling was extremely useful in involving people who wanted to share their views with the researcher, for instance during meetings with other producers, through friends of friends, participation in seminars/university events. These participants also help to triangulate information from the officially appointed participants and to raise issues that were not considered or available at the start (Yin, 2006).

Regarding the relevance of the selected research sample to the research aim and the themes, this research aim was compared with an existing study by PIAL on local participation, that also covered overall food systems. Considering the time allocated for the field work, it was decided to sample 300 participants in total, so as to ensure inclusion of all the stakeholders and in particular to cover the food consumption dimension. This number was reassessed during the data collection period and at the point of saturation (Fusch and Ness, 2015), i.e. when the information provided by participants was seen to be reiterative and showed similar traits to information collected through active participation (described in section 3.4.3 below). The assessment of the point of saturation was checked almost daily by the researcher's own analysis of information, with some triangulation to find when saturation was reached. The final number of interviews was 279 (see list of participants in Appendix: 3.1). To guarantee anonymity, each participant is identified by a letter and number, appearing as 'ID' in the participant list. The letters refer to the participant's relation-engagement within food systems

and the research site. In the first group: P for producer, MI for processor, D for distributor, and C for consumer/non-producer, followed by the initial of the site: S for San Jose de las Lajas, C for Cienfuegos and L for Havana, followed by their corresponding number. In the second group the letters are SG (for second group) followed by their corresponding number.

3.4 Methods for data collection

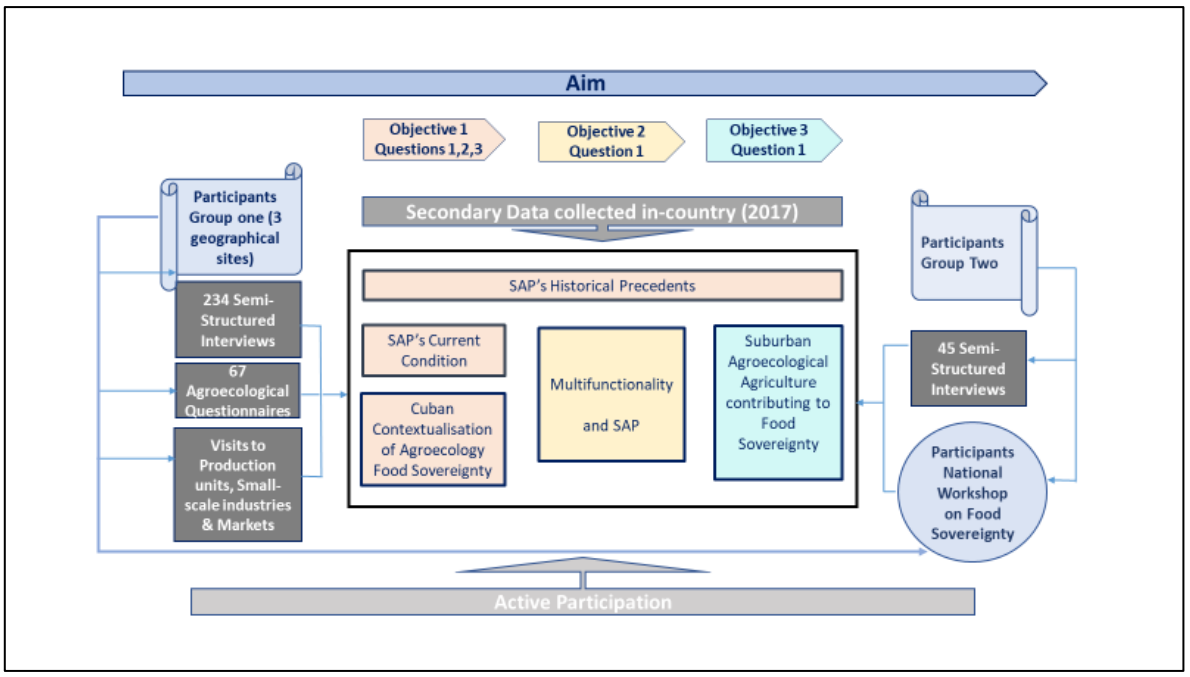
Following the transformative mixed methods methodology and dialectical perspective, the information collection strategy needed to allow for the gathering of qualitative and quantitative information in a convergent manner, and to include the thematic areas of the theory used in the research. Thus, the thematic content of the Six FS Pillars (presented in Appendix 2.1) was organised around the food system dimensions and processes. As well as including specific open-ended questions about agroecology and FS. The aim was to allow free discussion about the questions in some cases, whilst in others to have more focused, detailed discussion, to counteract bias and allow for wider participation, e.g. from participants not directly involved in production.

Methods used within the research methodology

- Semi-structured interviews (qualitative and quantitative data)
- Questionnaires (closed and open questions)
- Ethnographic methods: fieldwork diary with thick interpretation and active participation
- Visits to production and commercialisation units
- National Workshop on Food Sovereignty (NWFS)
- Collection of secondary data from academic, and grey sources. This included archive materials, Cuban media written, oral and visual recorded material, and data collected through participation in national and international seminars in Cuba.

These methods were aligned with the research aim, objectives and questions as well as the two groups of participants as shown in Figure 3.6.

Figure 3.6: Transformative Mixed-Methods Methodology: Aim, Objectives, Questions, Participants and Methods



3.4.1 Semi-structured interviews

These were a 'best fit' for the research issues, offering flexibility plus rigour (Russel-Bernard, 2006), enabling conditions for respectful and meaningful researcher-participant dialogue and discussion of issues arising. They also generated both qualitative and quantitative information, with the FS framework theory used to frame the questions in an open manner (Creswell, 2014).

The semi-structured interviews followed standardised formats for each participant group (Russel-Bernard, 2006) (see Appendix 3.2), to collect qualitative and quantitative information about food production, processing, distribution and consumption and processes and relations between them. Once reviewed and approved by the Director of INCA, the Ministry of Interior and the research supervisor in Cuba, formats could not be changed (particularly in terms of adding extra questions). Some questions were removed by INCA during the research preparation (on salaries, income, amount of food production/expenditure). The advice however was not to exclude these issues if raised by participants. It was also possible to collect such information through secondary sources if available (USAFP and ONEI statistics) and ethnographic methods.

3.4.2 Questionnaire about agroecological practices

Questionnaires have been used differently by researchers (Zoltan, 2011): 'interview schedules' where prefixed questions are read to participants who write/mark down their response, or 'self-administered pencil-and-paper questionnaires'. This study adopted the first option in order to design and conduct a questionnaire on the knowledge and use of agroecological practices, by combining previous formats used by Cuban researchers (Vazquez-Moreno, L. Fernandez-Gonzalez, 2007; Funes-Monzote, 2009a; Vazquez-Moreno, 2011; Vazquez-Moreno and Martinez, 2015; Blanco-Lobaina et al., 2016). It included some practices used by some Cuban producers and authors but not widely known or recognised among the academic community, e.g. the harnessing of pyramidal energy, the application of homeopathy in plants and the use of the moon calendar. The questions had 'yes or no' answers, with the opportunity to qualify the answer (see Appendix 3.3). The questionnaire was applied during semi-structured interviews with producers, to expand on some questions in those interviews.

3.4.3 Ethnographic methods: field work and active participation

This research used two ethnographic methods: (1) a fieldwork diary with "thick interpretation", explained by Geertz (1973) as taking into consideration the levels and structures of meaning that give the context not simply as a phenomenalistic description, and this was married to all the other methods to explore, provide context and explanation; (2) adaptation of the classical use of participant observation, which, although first used in sociology (Russel-Bernard, 2004) in the anthropological functionalist school (Vasco-Uribe, 2010) is associated with data collection where information is 'extracted' within a subject-object relationship between the researcher and the 'informant'. Researcher participation through participant observation veils epistemological problems regarding power imbalances between observer and participant (Burawoy, 1998; Fals-Borda, 1999; Vasco-Uribe, 2010). Drawing on Vasco (2010) and Fals-Borda (2008) critique on participant observation, this research adopted the perspective of active participation in order to demonstrate that the researcher's positionality-participation, with her personal history, in the Cuban context, has an impact on those encountered in Cuba, the researcher herself, and the research outcomes. For instance, the researcher's choice of accommodation (university campus/hostel/hotel/private house) and means of transport (public/tourist) would determine when/where she could travel or have informal conversations with local people. Decisions on these and other issues affected the interpretation of reality, and had an impact on people, that needs to be considered. In this context, active participation calls for negotiation of the relationship between the researcher and the other participants in

the research and for the researcher to become acutely self-aware and to pre-empt the results of her participation. Burawoy's (1998) analysis on participant observation - in the context of division between humanities and natural sciences - also highlights the issue of power differences lying in the relationship between the participant and the observer and the need to minimise power differences and make them count in the hermeneutic process.

Active participation and thick interpretation helped to explore underlying issues, and reflect on the lived reality of research participants in their historically-determined context (Ollman, 2003), e.g. understandings of FS and agroecology and the meaning that people give to these concepts, either when discussing them or through behaviours and practices. Being an active participant in extended field work gave insights into webs of solidarity and ways to assert agency that Cubans have built around food and life in general, that are not verbalised but are tacitly enacted. It also placed a responsibility on the researcher regarding what to record, respecting the trust and openness of people to talk about issues that normally they would not discuss with a stranger, far less a researcher.

3.4.4 Visits to production units

Visits to production and processing units were carried out using semi-structured interviews, and in the case of producers, completing the questionnaire on agroecological practices in participatory rapid assessment fashion, while discussing with producers as they pointed out aspects of their farms through farm walks. A second visit to each of the producers was planned but was not possible due to delays in receiving authorisations.

3.4.5 National Workshop on Food Sovereignty (NWFS)

This activity was unique to this research and was suggested during the second month of the field work by a research participant who had been doing extensive research on agroecology in Cuba and thought that FS was an area meriting further exploration. It was an opportunity to tease out directly the FS framework as proposed by La Via Campesina in the context of socialist Cuba. Despite what authors have written about Cuba in relation to FS, it had never before been undertaken in this manner. There were however various challenges to organising a national workshop on this topic. It required official approval from various bodies including the Ministry of Agriculture and needed to be seconded and owned by institutions in Cuba. In any case, the researcher considered it inappropriate to hold a national workshop on FS that was not run by Cubans themselves. Therefore, the idea was presented to the group who had coordinated a previous national meeting on agroecology, set in the National Agricultural

University of Havana (UNAH) and the UNESCO Masters Cathedra on Agroecology and Sustainable Development. Specifically, the idea was presented to UNAH experts on popular education, the Dean of the Faculty of Agronomy and the Dean of the UNESCO's Cathedra, who cross-examined the researcher about the purpose, content and methodology to be used and, most importantly, who would own the end results. The researcher clarified that the workshop would contribute to her own research with the aim of a research output, but crucially, that the results would be owned by them. After lengthy discussion the aim, objectives and methodology were approved and authorised by INCA's management and the Ministry of Agriculture. There was no further authorisation needed to fulfil ethics procedures.
The other challenge was the logistics of holding a national meeting in Cuba, particularly transporting people from different provinces. Above all it was necessary to involve various actors to make it inclusive and participatory e.g. government officials (local and national), research-education institutions, producers, and NGOs involved in food and agriculture systems.

The workshop finally took place on 30 November 2017, under the auspices of INCA, the UNAH Faculty of Agronomy, UNESCO's Cathedra and other institutions such as INIFAT, ACPA, ACTAF and PIAL (see Figure 3.7 with invitation to NWFS). This event aimed to capture reflections from social actors involved, directly or indirectly in food systems. The purpose was to discuss and devise a process that helped understand how Cuba owns and builds FS and the role of agroecology in this process. The expected results were:

1.To advance collective understanding of what FS means in socialist Cuba
2.To share the FS vision proposed by LVC and the FS vision in socialist Cuba
3.To build possible indicators to measure FS in Cuba
4.To have consensus about the next steps to continue with the debate about of FS in Cuba.

The invitees were those who participated in this research enquiry (through the semi-structured interviews, questionnaires, *finca* visits and food processing units). It was also open to those who had not participated as yet but were directly involved or interested in FS. A total of 70 people came to the workshop, including producers, food processors, consumers/non-producers, government officials, students, land labourers, and researchers.

Figure 3.7: Invitation to the National Workshop on Food Sovereignty

Source: Author

Two main inputs were used to frame the discussion, the Partido Comunista de Cuba (hereafter PCC - Spanish acronym) Policy Guidelines of the Cuban Socio-economic Model (Partido Comunista de Cuba, 2017a, 2017b) and the FS framework with its Six Pillars as presented by LVC and allies (Nyéléni, 2007). The workshop was planned jointly by two researchers' experts on popular education from UNAH and PIAL and the researcher while in field work, and the final agenda for the day was sent to participants via email and leaflets and provided during the workshop. Activities included group work, plenary discussion, presentation of the FS framework by a leading agroecologist in the country, questions and answers session, collective crystallisation of concepts and ideas, a producers' fair, sharing food and a dynamic evaluation involving music and dance. The workshop was introduced by a representative of INCA where permission to record was requested as well as restating that the workshop would be used in the researcher's thesis. The workshop was video recorded throughout.

3.4.6 Collection of secondary data

Secondary data was collected and analysed throughout the research process. Sources (some only available in country) included ONEI's statistics database, official documents of the PCC, Ministry of Agriculture, the USAFP programme database, INIFAT, Spanish academic literature by Cuban authors (journals, theses, reports, manuals, conferences recordings, presentations and proceedings), national and local media articles, TV news and programmes, videos and documentaries. There were limitations to the data available on agricultural production and land use in the suburban area, since official data provided by the ONEI had no disaggregated information about USAFP or the SAP.

3.5 Collection, organisation, and analysis of information

Collection of information took place during nine months field work in Cuba, in November 2016, March-September 2017 and November 2017. The same methods were used in all the research sites, with 2 months field work in each site, and longer in Havana province to enable the preparation of the NWFS. All information gathered was handwritten in Spanish to enable sharing/reflecting with participants and authorities when requested. Tape or video recording was used occasionally but most people preferred not to be recorded. The NWFS was video recorded throughout. The collection of in-country secondary information took place throughout the entire field work.

3.5.1 Applying the four steps of the FS-A-D analytical framework

3.5.1.1 The first step: from the general to the particular

This step comprised two components:

Organising and analysing the information. This happened during the interviews, visits, and meetings with research participants, where questions that had been formatted in advance could be expanded, allowing deeper levels of discussion, providing information not covered in the original questions. This component included entering information into an Excel two axis format, the vertical axis containing the questions about food production, processing, distribution and consumption (of semi-structured interviews), and the horizontal axis with responses of all participants per geographical site, and in similar fashion for the questionnaire on agroecological practices. This process was done almost daily to identify the saturation point, which implied some level of analysis, for example finding similarities, contrasting or complementary information. The first site visit was to the province of Cienfuegos, where 90 people out of the 100 expected were interviewed over two months. The field work in Mayabeque and Havana took place over seven months, living and travelling from one place to the other. After five months of collecting and organising information, the level of similarities in the participants' responses clearly emerged, nonetheless the target of 200 people (from these two provinces in total) was still pursued in order to have more rigour. The total number of people interviewed was 279. Secondary information, such as statistical information about the research sites, was distilled from national official documents, reports and unpublished data about the SAP in each site.

The subsequent organising and analysing of information involved building a description of each of the geographical sites through "converging qualitative and quantitative data" as in a

convergent parallel mixed research methodology (Creswell, 2014), using primary data and official documents and statistics about the SAP and overall Cuban food and agricultural systems. Thus, three case study descriptions were prepared giving a panoramic view of the SAP embedded in the broader agrarian context. This included aspects of the mode of production and wealth distribution (forms of production, organisation, access to means of production, labour processes, food distribution/access mechanisms) from the perspective of both official data and of the research participants, thus applying the dialectical method through two levels of abstraction, from the vantage point (Ollman, 2003) of the official and the individual perspective and from a perspective of generality, contrasting both national and local information to understand the socialist mode of production and wealth distribution in which the SAP was embedded. At this point, the theory of FS and agroecology and the 'four-planes of the social being' (as stated in the dialectical approach) were guiding the analysis in the background, but the content was still **organised** (not to be confused with the full analysis per se) under the food system dimensions. This was done with the aim of approaching the subject of study viewed as a totality in its present condition, and not tied to theory. This is particularly important in the case of Cuba where previous authors have projected their theories onto the country and arguably mis-interpreted or have narrow or flat abstractions of the reality. The background questions that guided this level of organising and analysing information were the research questions, and the following general questions (adopted from Paolucci, 2007:116, in Roberts, 2014:14) and embedded in the FS-A-D analytical framework:

- What are the ongoing empirical regularities within the context in question?
- What are the most essential structural relations in this context?
- What structural relations account for specific empirical regularities?
- What historical events account for the rise of this or that set of relations?
- How have these empirical regularities and structural relations changed over time?
- What are the primary causal forces of this change?

These forces of change as Bhaskar emphasises are not only internal but external relations (2008), somewhat akin to Mao Tse-Tung's reflection of the concept of exogenous and endogenous forces in the dialectical contradiction (Tse-Tung, 1937).

The outcome of this first step of organising and analysis was a descriptive case study of the three geographical sites. The general view from the three cases showed a level of similarity in terms of the responses of all participants, the national administration and infrastructure in which the SAP was implemented. Although they were in municipalities of three different provinces, they were under the same administration system, reflecting the Cuban State central planning system, in which municipalities share the same types of tenure and land ownership, size and use of land, forms of organizing production, production methods, institutional support

network commercialisation channels and mechanisms for food access/distribution. There were some differences in production priorities due to type of soil and climatic conditions, but all provinces followed the same SAP guiding principles. This was confirmed by national statistics and secondary data collected in country during the research. These general insights from the case studies were key to deciding to continue analysing the information as a whole, rather than as individual cases, to obtain an overall view of the SAP as a national programme within the Cuban agricultural sector in the socialist model, and its constituent elements - people, processes, institutions and legal structure.

Direct analysis of the interplay between the elements of the Food Sovereignty-Agroecology and Dialectics framework, that is the philosophical principles of the dialectical method, the 'four-planes of social being' and the Six FS Pillars (presented in chapter 2 section 2.5) - having the SAP as the focus. The FS Pillars and the 'social being' were used to show more explicitly the interrelationships and processes that hold the parts together, from the perspective of the FS-Agroecology theory and the stratified ontological perspective of the 'social being'. Analysis was focused on each FS Pillar while keeping in mind the stratified levels of the social being in the background. In addition, under the premises of the FS-A-D, the theoretical debate about each FS Pillar was discussed alongside the analysis of empirical information of the SAP. In this way, contradictions and tensions within the theory serve as lenses to analyse the SAP as a totality, helping to answer questions about the processes that connected elements and how they were totalities in their own right. The analysis retained several levels of dialectical abstraction (Ollman, 2003), but primarily considered the abstraction by vantage point, which is the view of the official narrative and of all research participants as well as information collated through active participation. This step encapsulates all the other steps in the organisation and analysis of the empirical data and secondary sources gathered during the field work. It is presented in detail through six sections in Chapter 5, in which the Six FS Pillars serve as the guiding thread to explore the current situation of the SAP.

3.5.1.2 The second step: from the particular to the general

This step involved a historical review of the precedents of the SAP and the updating of the Cuban socialist Socio-economic Model and is presented in chapter 4. This involved analysis of secondary information, including official documents, grey and academic literature some of which was only found during the field work. In this step a historical approach was used to analyse the general situation again, this time from the point of view of the historical past of agrarian relations and its links to the SAP. Although dialectically the analysis of the past took place after the analysis of the present situation of the SAP, it is presented first in this thesis

for expositional purposes for readers. However, it is essential to highlight that the historical analysis is part of the analysis of the reality, the past is not the background or context but the present in a state of becoming (Bhaskar, 2008). It is a living part of the historical present and future (Marx and Engels, 1968).

3.5.1.3 The third step: establishing dialectical movements in the past and the present

In this step, presented in chapter 6, the major elements from the past are retrieved and their connection with the SAP's present situation is evidenced through the 'four-planes of the social being'. Whereas in the previous step the guiding thread was the Six FS Pillars with the 'social being' in the background, in this step the latter takes priority. Dialectically speaking the two tools of the FS-A-D are adjusted to have a different perspective of the elements and the total structure as well as how the structure is transformed by the elements. The information analysed in each of the FS Pillars, in this step, is now put into perspective from the lenses of the 'social being' to have an overview of both the totality and stratification within the concept of unity-in-difference.

Within this line of thinking, the precedents of the SAP, presented in chapter four, are also put into context in a systematic manner - particularly with respect to the Emergent Totality of the 'social being' or the historical institutions and values, and how the latter, plus information on agency from each FS Pillar, contribute to the Transformative Praxis, individually and collectively. In this step, the double movement, historic and systemic approach, of the FS-A-D, come to the fore. This is done by making apparent historical trends in terms of processes, interrelations of social actors, contradictions or/and oppositions that have been repeated across time and space in areas addressed in each FS Pillar, but now put in the flesh, so to speak, of the multiplanar nature of the 'social being'.

Thus, analysis in this step brings to the fore points of inflection and/or contradictions bringing about social change. In doing so it shows the trajectory of the SAP and agroecology, in terms of what is empirically observable as well as the processes and structure in which it is embedded. From a general perspective it provides a clearer picture of how the SAP contributes to FS in socialist Cuba and, equally important, shows possible scenarios for the future in a coherent manner through the 'four-planes of the social being' as open-ended totality.

3.5.1.4 The final, fourth step: projecting major contradictions, connections, and changes in the past and present into the future

The analysis at this stage retrieves from the previous steps the major dialectical relations contributing to FS and the elements and vision underpinning the Cuban socialist perspective of FS, which in turn form precedents of 'the future'. This step encapsulates the conclusion of the research and is presented in chapter 7.

The steps of the dialectical analysis and their relation to the research aim, objectives and questions are presented below in Table 3.2.

Table 3.2: The steps of the dialectical analysis

Food Sovereignty-Agroecology and Dialectics					
Analytical steps	***Analytical Framework and Concepts***	***The current condition of the SAP explored through the Six FS Pillars***	***The historical precedents of the SAP***	***The past projected into the present through the Four Planes of the Social Being***	***Projections into the future***
Chapters	***Chapter 2***	***Chapter 5***	***Chapter 4***	***Chapter 6***	***Chapter 7***
Research Aim: *To explore the development of agroecology in suburban food and agricultural systems and its contribution to food sovereignty in Cuba in the light of the updating of the country's Socio-economic Model.*	*x*	*x*	*x*	*x*	*x*
Objective 1: To explore the development of agroecological suburban agriculture in Cuba.	*x*	*x*	*x*	*x*	*x*
Question 1 *What are the historical precedents of suburban agroecological food and agriculture systems in socialist Cuba?*			*x*	*Human-Nature Human-Human Emergent Totality Transformational Praxis*	*x*
Question 2 *What are the characteristics of current suburban agroecological food and agriculture systems?*		*x*			*x*
Question 3 *What is the contextualisation of agroecology and the food sovereignty framework in Cuba?*		*x*			*x*
Objective 2: To explore the multifunctionality aspects of suburban agriculture.		*x*		*Human-Nature Human-Human*	*x*
Question 1 *To what extent is suburban agroecological agriculture multifunctional in Cuba?*		*x*			*x*
Objective 3: To explore how suburban agroecological food and agricultural systems contribute to food sovereignty.	*x*	*x*		*Human-Nature Human-Human Emergent Totality Transformational Praxis*	*x*
Question 1 *To what extent suburban agroecological food and agriculture systems contribute to food sovereignty in socialist Cuba?*	*x*	*x*			*x*

3.6 Methodological and analytical limitations

One of the limitations to fully meeting the mixed methods approach in the research, was the collection of qualitative data from producers about sensitive issues and specifically: a) crop yields b) the investment required, and sales attained, c) income and salaries of producers, and d) amount of income spent on buying food and other basic items. Moreover, this data

gathering limitation in the field was compounded by the lack of published officially disaggregated data on urban and suburban agricultural production and differences between agroecological and conventional production and distribution. This limited the extent to which this research was able to explore the different levels of productivity and its relation to the use of agroecological practices. This in turn had an impact on the ability to establish specific and numerical connections around quality and quality of production, for instance levels of expenditure on inputs and the real gains made in return. It would also have been useful to find out how much was being invested by producers in buying food and other items and equally how much they were contributing to the national food production in monetary terms. In this respect, the information presented about the production of vegetables in the urban and suburban programme provided by the GNAUSF (namely contributing 54% of the national production of vegetables) was a unique finding of this research.

These limitations to accessing qualitative data on production were partially compensated for by the questionnaire on agroecological practices which was useful in revealing semi-qualitative information regarding productivity, such as the variety of produce and species in the production units, types of inputs used and how these were accessed, whether producers had surplus to sell in the private market and the difficulties they might experience in meeting their State targets. Regarding individual expenditure on food, insights were obtained through cross-checking types of food and places where they were accessed, and then correlating this with the researcher's own active participation in daily life in Cuba. The available official statistics on land use and production across all programmes in the country were also used for triangulation, for instance comparing the variety of food produced in the SAP with food consumed by research participants and with official information reported in national statistics on overall food imports and national production.

A second limitation related to the official authorisation required to meet producers, due to delays in receiving this authorisation. There were also delays with preparations of the national workshop on FS as it needed it to be authorised by various people at different levels which meant that the researcher had to leave the country and come back again to undertake the workshop as her visa had expired. This happened in spite of the workshop being planned months in advance with the aim of having more than the 70 people who actually attended. Having said this, the workshop was a success in having a mix of participants who were enthusiastic to debate about FS. A national workshop on FS had not taken place before in the country, as per comments of participants and the people working with the researcher in preparing and delivering it. Comments in the workshop's final evaluation showed that the activity was a success, first because of the methodology used "it was good to have everyone

participating", -this reflected the lively and open debate held by participants. And second because people felt motivated to continue the debate thereafter. The call for action from the workshop, was to have more workshops on FS as it is such an important topic and to continue fostering the participation of government officials.

Regarding the learning gained from using the FS-A-D analytical approach, designed for the research, the researcher found it to be a learning curve on how to manage different levels of abstraction at any one point, without missing the notion of totality, that is, going into a high level of detail which could take the analysis towards multiple singular analyses of the parts rather than as a totality, particularly in the first phase of the analysis. Moreover, it was necessary at times to maintain the analysis from different angles, that is from both the official narrative and from the perspective of research participants, separated as much as possible to avoid flat abstractions. The second aspect about using the dialectical analytical approach, along with the concepts of the FS Pillars and the 'four-planes of the social being' was the challenge to manage time and space (word count). Having said that, using these as the frame and content of the analysis proved the worth of the whole analytical framework, as through them, different ontological and epistemological levels of the SAP came to the fore. The third aspect to note from the use of the analytical framework was the actual presentation of the analysis in the final thesis, in such a way that it portrayed the trajectory taken in the analysis which in turn affected how key findings were abstracted. This is about going back and forth in time and from the general to specific and back.

A final point regarding the dialectical FS-A-D analytical process was the self-transformational process that happened when 'absenting the absence' as Bhaskar put it (2008), that is, the actual praxis of self-transformation through forcing oneself out of the intellectual and emotional inertia (the absence). The researcher faced and had to bring about substantial deconstruction of her own cognitive process, theories, and ideological preconceptions.

3.7. Researcher's own transformation

As I mentioned before when stating my positionality, I started this research with some theoretical and practical biases. These were my support for Cuba and its struggle for self-determination against USA imperialism, my uncritical position about Marxist-Leninist socialism, and the conviction that that there is a gap in reality that I cannot see with my five-senses - as I would read later in Bhaskar, there is always a gap or absence (2008). However, perhaps the most important unrecognised biases were regarding the ingrained notion of reality as close-ended and static and my "fear of freedom" (Freire, 1970; Fanon, 2008). Although I

was/am theoretically aware that reality is in constant change (as I had learnt from Buddhist philosophy), recognising this change empirically and moving on with it or being transformed by it, are three moments which are not always in coherence. These three moments speak about cognition processes which can be transformative or only an accumulation of external data, then analysing it, still as an external-factual phenomena, then regurgitating some 'knowledge', as in a pure positivist scientific enquiry fashion. My inertia and fear of freedom were taking me towards the latter. For instance, by my pragmatism when dealing with the 'concern about full participation' as explained before, and by being prepared to undertake the research under a positivist approach. However, my inertia and fear, were confronted throughout the entire research process. This was manifested as clear contradictions between what I experienced and what I have read or theorised about reality. Unconsciously, my first reaction when facing contradictions was to adjust my 'vision' (Haraway, 1988) 'in case I was not seeing properly' or as stated in theory, but more importantly because of fear of going against the flow and as a self-preservation instinct. However, the contradictions were not going away, which forced me to find a way to deal with them. Thus, opting from the dialectical critical perspective helped me to think in terms of dialectical relations. I could make sense of facts but also their connections with processes taking place historically but not in a teleological manner, which helped me to understand the intricacies of different 'visions', and, importantly, aided me to be aware of my own thinking processes. However, to fully apply this dialectical thinking, I had to conquer my fear to accept and express contradictions. This is related to what Bhaskar calls, dialectics as axiology of freedom (2008), because it meant my own individual absenting the absence, that is addressing master-slave relations, in my case control and censure imposed by others and paradoxically by myself as instinctual self-preservation. My fear was associated with internalised intellectual colonialism and acceptance of others' 'vision' as the appropriate one, plus the fact of having to face physical and psychological threats. The process of doing this research and writing the actual thesis was a process of conquering these fears by mastering the art of thinking dialectically to accept change and contradiction as a fundamental part of reality in a non-dualistic manner, as well as being prepared to scrutinise/critique my own vision and others' visions of reality, regardless of the status quo. This helped me, for instance, to review my position regarding theories-ideology on hierarchical, patriarchal and authoritarian socialism and to envision paths to food sovereignty as an open-ended and stratified reality.

3.7 Summary

This chapter described the process of selection and building the research methodology, a transformative mixed methods approach. Selection was guided by the FS-A-D analytical

framework presented in chapter 2. The first aspect discussed was the research positionality, ethics, and consent, as these aspects contributed to, and provided reasons for, selecting the methodology. There was consideration of why an action oriented, participatory approach, as initially intended, was not taken forward, and the reasons for selecting the mixed methods approach accompanied with transformational theory. The former was considered pertinent as it provided the flexibility to view the totality, that is in its qualitative and quantitative aspects. The transformational aspect was chosen so as to be consistent with the philosophical assumptions of the research and the political stance of the two main concepts used, that is the transformational ambition of the FS and agroecology.

The second aspect presented was the strategy for the selection of the research sites and participants, with description of the criteria for selection of the research sites and the participants. Participant selection used two sampling techniques, purposive and opportunity sampling. The three geographical sites were in three different provinces Cienfuegos, Mayabeque and Havana, focusing on the municipalities of Cienfuegos City, San Jose de las Lajas, Marianao, La Lisa and Habana del Este, each within their localities (or settlements). The third aspect covered the selection of methods for collection of information and their suitability for the methodology. These were semi-structure interviews, questionnaires, field visits to production units, ethnographic methods: field work and active participation with thick interpretation, and the National Workshop on Food Sovereignty (see Figure 3.6). Similarly, it described the inclusion of secondary data. The chapter also presented a description of the process to organise and analyse information according to the FS-A-D framework, thus moving from the general to the particular and vice versa. This chapter ends by discussing the limitations of the methodology and analytical approach and researcher's own transformational process.

According to the dialectical method, the analysis starts from exploring the present (chapter 5), then moving to the past (chapter 4), then recalling major findings from the past and moving on to the present (chapter 6) to conclude with projection towards the future (chapter 7). Having said this, the method also highlights that although the analysis started in the present, the actual presentation in this thesis, starts from the past. In this manner, the thesis now turns to chapter 4, the historical precedents of the SAP.

Chapter 4
The Cuban Suburban Agricultural Programme (SAP): Historical Precedents

This chapter presents a historical overview of the context in which the Cuban national Suburban Agricultural Programme (SAP), based on low input and agroecological practices, emerged[22]. It highlights key dynamics in Cuba's agrarian relations, including the socialist path adopted by the Revolution[23] leaders and the contradictions between social forces regarding the vision of socialism; the crisis that followed the Soviet bloc's collapse in 1991 and the consolidation of the movement of ecologically friendly agriculture; the crisis of 2008 which inspired the official launch of the SAP and updating of the socialist Socio-economic Model. This historical trajectory shows the official adoption and implementation of a mixed approach to agriculture (integrating industrial agriculture with agricultural programmes based on ecologically friendly practices) cemented by political, social, and economic processes within State-civil society structures. Through this approach the SAP was set up to increase production and to substitute imported inputs, based on the State-led redistribution of suburban idle land[24], sustainable farming practices (e.g. traditional farming and agroecological practices) and self-sufficient modes of production. This chapter is the third step of the analytical framework FS-A-D adopted in this research, exploring what happened in the past for the present to be in the way it is now (Ollman, 2003).

4.1 The socialist vision and the modernisation of agriculture and the peasantry

One of the building blocks of Cuba's development after the 1959 Revolution was the transformation of social-property relations and the modernisation of agriculture and rural development through the transformation of the peasantry and the mode of agricultural production (Nunez-Jimenez, 1982; MINAGRI, 1996). The Cuban sociologist Valdez-Paz, described this as the levelling of development between the rural and urban areas which brought about key outcomes:

- "Full permanent employment for all rural workers.

[22] This chapter is based on secondary sources, some of which were found only in Cuba.
[23] There had been social and armed insurgences recognized as Revolutions in the Cuban history, in 1868, 1895 and the 1959 Revolution (Callejas-Opisso et al., 2015). The term Revolution in this thesis refers to the latter unless otherwise stated.
[24] "Idle land is land not in agricultural, livestock or forest production - with the exception of areas for crop rotation, covered with marabu (Dichrostachys cinerea) - a wild or invasive plant, insufficiently suited to crop growing, or plantations where soils are not suitable, resulting in low yields, and those which support small numbers of animals per hectare" (ONEI, 2016).

- Universal and free health, education, sport and culture, social safety and social assistance.
- The number of people living below the poverty line has decreased notably.
- An extensive rural infrastructure made of road systems, electrification, hydraulic systems, housing, social services facilities etc, has been created." (2011:84).

The Marxist-Leninist socialist vision adopted by the Revolution leaders was based on a notion of modernity achieved by using science and technology to unleash the productive power of agro-industrial development and consolidate political power in the State (MINAGRI, 1996). Based on these premises, within a year of the Revolution two strategies were attempted for agro-industrial development. One was diversification of agriculture and the other maintaining the mechanised large-scale production of sugar, tobacco, and coffee for export (Deere, 1992; Valdez-Paz, 2009). However, after negative results from the diversification of agriculture - attributed to poor planning and lack of resources, plus pressure to meet sugar cane export quotas with Cuba's only trading partner, the USSR, after the collapse in sales to the US due to the blockade - it was decided to concentrate efforts on crops for export (Souchy, 1960; Dolgoff, 1977). Fidel Castro emphasised that the country needed to produce food for its people, which necessitated maximum use of technology in agriculture (MINAGRI, 1996). The development strategy that followed was based on State-led latifundio and the collectivisation of labour (Valdez-Paz, 2009; Nova-Gonzalez, 2013a). The leadership's emphasis on scientific and technological development focused on conventional agriculture, and this expanded greatly in the decade following the Revolution. From the 1970s, it also included development of biological controls and integrated pest management as input substitution for commercial crops. By the 1980s the first 50 Centres for the Reproduction of Entomophages and Entomopathogens (CREES - Spanish acronym) were created across the country under the direction of the Ministry of Sugar (Vazquez and Perez, 2016).

Regarding the consolidation of State power, this was supported by two State-led agrarian reforms (1959 and 1963) that transformed land tenure patterns and forms of organising production (Valdez-Paz, 2009; Nova-Gonzalez, 2013a). Through these reforms (which included nationalisation and expropriation of land and other assets) the State took control of most of the land, a pattern still existing in the country (MINAG, 2017a; ONEI, 2017d). It also collectivised most forms of production, through State-led collectivisation of land and labour in various forms of associations and cooperatives[25] (see Appendix 4.1) (MINAGRI, 1996;

[25] Previous forms of societies created by anarchists for instance the mutual aid associations or the free agricultural cooperatives (Casanovas, 1998) were discouraged or taken over by the new State-led cooperatives.

Entrevista-Pineiro-Harnecker, 2013; Nova-Gonzalez, 2013b; Matias-González and Artiles-Beltran, 2016). Political and economic land-based relations (Borras, 2007) were fundamental to the consolidation of the Cuban socialist State and the driver of agrarian capital formation. As Lenin asserted regarding the Russian Revolution, land was a political issue related to the power struggle by the 'proletariat' State (1966) and a means to unleash progress. However, these two goals, consolidating political power and maximising the land's potential, created an internal tension in the Cuban leadership, termed the Cuban agrarian question. This was like the classical agrarian question, in which the Russian State was resolving the issue of how to handle the peasantry and agriculture to unleash the productivity of the land to generate agrarian capital (Lenin, 1975, 1976; Banaji, 1990). In Cuba, the agrarian question troubling the leadership since winning the Revolution (Valdez-Paz, 2009) was handled with the "Thesis of the Agrarian Question and Relations with the Peasantry" (Rojas, 1978) a policy-making centrepiece proposal developed by Fidel Castro and approved in the first congress of the Cuban Communist Party.

This document is perhaps one of the most important ideological pieces setting out the vision of the Cuban socialist development strategy post-Revolution (Rojas, 1978). The ideological foundation of Cuban national sovereignty is based on a pragmatic mixed approach to development commanded by the one-party socialist State. It meant, inter alia, the combination of large-scale industrialised development under monoculture and highly mechanised mode of production but at the same time protection of the environment. This pragmatism relates to a political issue, namely that while maintaining strong political control, the strategy can be mixed with new elements but without changing the fundamental structure. This becomes more evident through looking in detail at the content of the resolution of the agrarian question.

The resolution of the Cuban agrarian question was an economic and developmental issue but perhaps more importantly a political and ideological problem. This was framed as the leadership's fight against the last bastions of capitalist tendencies, including the independent medium-scale peasantry (Deere, 1992). Deere comments that it was necessary to control the campaign by medium-scale peasants to remain independent when faced with the government's collectivisation process during the two agrarian reforms in 1959 and 1963 (Ibid). The handing of land titles to 100,000 poor peasants who had been a corner stone in the Revolution (Nunez-Jimenez, 1982) did not resolve the main problem, which was political control. The division of land into small plots among the poor peasantry was a political concern for the consolidation of the Party somewhat akin to Engel's position on the agrarian question (Engels, 1894). The Cuban leadership also described it as "it was necessary to consolidate the alliance between the two classes - the workers and the peasants, in which the latter needed to be led by the former for the construction of socialism" (Rojas, 1978:14).

In a broader sense the problem is rooted in historical political and ideological division among Cuban revolutionaries regarding social change against colonialism, imperialism, and authoritarian forms of governance experienced from colonial times in the 19th century until the Revolution in early 20th century. The division was originally between reformists forces representing an authoritarian/statist approach, and the anarchists within the Cuban labour movement, pursuing a libertarian approach rejecting all forms of authoritarian governance and domination as well as party politics (Souchy, 1960; Dolgoff, 1977; Casanovas, 1998; Fernández, 2001; Shaffer, 2019). The anarchists' views were grounded in the ideas of Mikhail Bakunin and Peter Kropotkin disseminated among Cuban workers by widely known Cuban anarchists such as Enrique Roig San Martin, Enrique Creci and Enrique Messonier, Spanish anarchists migrating into the country and Cuban workers in the US (Fernández, 2001); ideas that were contextualised within Cuba's specific history into what Casanovas (1998) and Shaffer (2019) named as the Cuban own/creole version of anarchism – the Cuban anarcho-syndicalism (Fernandez, 2001)[26]. Anarchism in Cuba was the lead ideology within the labour movement from 1880, however since its origins it has been historically suppressed to varying degrees (Casanovas, 1998; Ibid). For instance, although the roots of anarchism in Cuba date from 1857[27], it is often omitted or downplayed in some historiographies of the country since the Revolution (Wolf, 1969; Harnecker, 1979; Nunez-Jimenez, 1982; Valdez-Paz, 2009), or, when included, it is portrayed as a non-political issue concerned only with workplace based struggles (Callejas-Opisso et al., 2015). Regarding the seemingly apolitical position of Cuban anarchists, although they championed the needs of urban tobacco and other trade workers, they pursued solidarity between workers (urban and rural) and small-scale peasants (Fernandez, 2001). The anarchist had a political position on agrarian issues such as the establishment of free agricultural collectives in 1948, the living conditions of the *campesinos,* and the organization of workers in plantations (Fernandez, 2001). They engaged directly with workers' grassroots organising through diversity of approaches to build a broad class struggle with people of different races, origin and political orientation (Ibid). This reflects their multiclass approach of working with poor peasants, rural, women, and black and white workers, as described by historians Joan Casanovas (1998) and Kirwin Shaffer (2003, 2019). This position has been held since anarchists' involvement in the 1898 independence movement and their support to Jose Marti when in exile in the US[28] (Casanovas, 1998; Shaffer, 2019). Similarly,

[26] This creole anarchism is recognised alongside the Argentinian anarchist movement as the two strongest and deepest-rooted anarchist movements in Latin America. "The Cuban is one of the largest anarcho-syndicalist movements the world has even seen, which at its height in the 1920s included 80,000 to 100,000 workers in unions operated on anarchist principles" (Fernandez, 2001:7).

[27] when Proudhon's anarchist ideas on mutualism formed the basis for the first mutualist society created as early as 1857 in Villa Clara.

[28] Cuban anarchist worker emigrees to the US's - Key West and Tampa - tobacco production areas in the early 1890's welcome Jose Marti during his independentist campaign while in exile in the US (Fernandez, 2001).

Fernandez (2001) and Dolgoff (1977) highlight the anarchist contribution to the Revolution which was beyond workplace related issues.

The historic vacuum regarding Cuba's anarchism movement is key to understanding the type of socialism that has dominated Cuban society since the Revolution and its relation to the peasantry as a political force. The history of political and ideological conflict between the Marxist-Leninist State-led vision of socialism of the Revolution leaders and their rejection of the libertarian and anti-Party politics social transformation (or socialism) sought after by Cuban anarchists (Souchy, 1960; Dolgoff, 1977; Fernández, 2001; Shaffer, 2019), is key to understanding the political problem in the constitution of the 'dictatorship of the proletariat' and the role of the peasantry in it. This reflected the contradiction between the libertarian and anti-State approach espoused by Mikhail Bakunin and Peter Kropotkin and the authoritarian approach to socialism espoused by Karl Marx, Vladimir Lenin and Engels - in the dictatorship of the proletariat State - adopted by the Revolution leaders (Rojas, 1978; Nunez-Jimenez, 1982). In this approach there was no social and political space for anarchists' views of confederative governance and rejection of non-Party and authoritarian governance, which were suppressed, for more on this see Fernandez (2001) and Dolgoff's (1977) historiography on anarchism prior to and under the Revolution.

Within this contradiction, it is key to highlight that there was a common point in regards of the role and perception of the peasantry by both the PCC/new leadership with its Marxist-Leninist socialism and the Cuban anarcho-syndicalists. Both anarchist and the reformist revolutionary leadership saw the need to transform the peasantry from its backwardness and to move them from the individualistic-family mode of production towards collective forms of production. Politically speaking, they saw the peasant, both as a class and as a mode of production, as something that needed to be transformed - into proletariat by the PCC and to be politically radicalized by the anarchists. However, the means to achieve this was based on one hand on solidarity and mutual cooperation, free of coercion and force, as argued by anarchists (Dolgoff, 1977; Casanovas, 1998), and on the other hand, the State's centralized hierarchical transformation of the peasants into proletarians and their collectivization, driven by the PCC and its leadership (Nunez-Jimenez, 1954; Rojas, 1978; MINAGRI, 1996).

Similarity regarding the peasant issue between the anarchists and the PCC is reflected in key declarations by them both as follow. Amid the political tensions between the different Cuban forces at the beginning of the 1959 Revolution and the suppression of anarchist publications that were in support of the revolutionary process but critical of the new leadership (Fernandez, 2001; Dolgoff, 1977), the Libertarian Syndicalist Group of Cuba issued its Declaration of

Principles in Havana in 1960. This Declaration set out the anarchist position regarding the peasantry and the collectivisation, alongside other ideological views[29]. "We therefore declare that we favo[u]r the organization of collective and cooperative work on a voluntary basis extending to the peasant every necessary technical and cultural tool - no doubt the best means - of convincing him of collective cultivation as distinct from and superior to individual or family cultivation". To act otherwise, to use coercion and force, would be to lay the basis for the complete failure of the agrarian revolution and consequently, THE REVOLUTION ITSELF." (see full declaration in Dolgoff, 1971:85-89). The PCC saw the transformation of the peasantry - within the debate about the agrarian question - as a fight against capitalist tendencies and as a production problem: "The country needed to maximise land productivity and to do that it was necessary to eliminate the minifundium or small parcela[30], as this was a backward form of production… in order to organise production on a bigger scale, the peasantry must overcome its traditional use of the land." (Rojas, 1978:29). Thus the resolution of the agrarian question approved by the PCC was: "There are two paths towards superior forms of production….the State Plan (*or Plan estatal o granja estatal*) and the cooperatives… to move to a superior form of production is necessary not only for economic reasons but to achieve the progress of the campesino family." (ibid:49-50). This necessitated transforming the agricultural sector through "mechanisation, use of agrochemicals and large irrigation systems, alongside studying, protecting and enriching the environment through soil protection". While stating that "peasant modes of production were backward and should be overcome… at the same time "the State respects the existence of independent campesinos. Although they are not socialists, they will be respected".

The anarchist argued that working with the peasantry was a matter of solidarity on struggle between different social forces in a pluralistic and federative manner. However, while acknowledging the role of the peasantry, their identity and agency for change was not fully acknowledge as they needed the workers to radicalise them. The PCC and the new leadership, through different means and towards a different end also appeared to be supporting the peasantry, but also doubly negating them, in their political organisation and their mode of production, through the State-driven collectivisation using the State hegemony through legislation and support of the military (Souchy, 1960; Nunez-Jimenez, 1982; MINAGRI, 1996) and controlling them politically through the State created peasant organization, ANAP. Responsibility for promoting collectivisation of the peasants into

[29] "Against the State in All its Forms, The Unions as the Economic Organ of the Revolution; The Land to Those Who Work It; The School Should Instruct; the Family Should Rear the Young; The Struggle Against Nationalism, Militarism and Imperialism; To Bureaucratic Centralism We Counterpose Federalism; Without Individual Freedom There Can Be No Collective Freedom; The Revolution Belongs To Us All" (in Dolgoff, 1977: 85-89).
[30] *Parcelas* are plots of land of up to 2has for small-scale production (see Appendix 4.3).

cooperatives was given to ANAP (Rojas, 1978), which since its formation has been the political voice of the peasantry within the State (Nunez-Jimenez,1982; MINAGRI, 1996), not as an independent body. The resolution of the agrarian question was backed by ANAP, and its priority was the conversion of independent peasants into cooperatives to overcome their backwardness and supporting peasants who were already in cooperatives.

With the repression of anarchism in Cuba under the new revolutionary government and the consolidation of the one party-political State, the pillars of the Cuban socialist political and Socio-economic Model of development were based on the State-centric pursuit of building national sovereignty and industrialisation-modernisation processes. These were achieved through concentrating the means of production under the State, control of labour (rural and urban workers and the peasantry) through collectivisation and proletarianization under State-led enterprises-cooperatives and the use of science and technology to unleash productivity and modernity. Under this vision, the peasantry politically speaking did not reach autonomy, on the contrary it was subsumed within the proletariat under the proletariat State, regardless of the peasants' role in the Cuban historical struggles for freedom and social transformation. Moreover, the recognition or not of the different strata or differentiation within the Cuban peasantry has been pragmatically used to support revolutionary attempts at different historical times and by the Cuban socialist State to drive reforms as explained in more detail throughout chapter 5 of this thesis.

4.2 National Sovereignty: between two evils, the US Blockade and Soviet bloc dependency

The vision of modernising and industrialising the country was conceived during a geopolitical imperialist battle, the Cold War, between the US and the Soviet Union. The internal contradiction at the heart of Cuban revolutionaries was exacerbated by the influence of the external imperialist forces. Decisions about Cuban development strategy were affected by three key historical events involving the ideologies that the two geopolitical powers represented. The first event was the expropriation and original primitive accumulation in the Cuban colonial sugar agroindustry, which set the pattern of agro-industrialisation before Cuba's agricultural sector could fully develop, for instance by diversifying land use and production instead of linking the entire sector to feed the sugar production-processing industry (Wolf, 1969; Amin, 1976). The second event was the political implications of the Cuban leadership's nationalising assets held by US foreigners in the context of the US fight against communism (Wolf, 1969). The third was the international foreign policy of the Soviet style of socialism which was spread into other countries by, for instance, exporting advisors, arms,

technology [31] and food as well as controlling politics and the economy in Cuba (Dolgoff, 1977; Leftwich, 1992).

In this context soon after the winning of the Revolution, Fidel Castro was navigating his way within the international community, including the diplomatic relations in April 1959 with President Eisenhower who rejected any relations with Cuba, and later he consolidated the political and economic relationship with the Soviet Union (Deere, 1992). The previous disagreement between Cuban anarchists and reformist within the communist party regarding the support-dependency from the Soviet Union was finally resolved by the Cuban leadership consolidating the relationship that the PCC had already initiated with the Soviets before 1959 (Fernandez, 2001).

Alongside this, "US-Style development as a universally attainable goal to be achieved through industrialisation and advances in agricultural technology" was being globalised, including being promoted by the FAO (Fairbairn, 2011:21). This style of development was behind the Right to Food and Freedom from Hunger campaign, which identified traditional smallholder agriculture as the problem for Southern countries (Fairbairn, 2011). Paradoxically, this vision was in principle similar to the modernisation of the peasantry and development of industry under the Marxist-Leninist ideology followed by the Cuban leadership. Within this context, the Cuban leadership adopted the Right to Food (Asamblea Nacional del Poder Popular, 1992; Ministerio de Justicia, 2003) as promoted by the FAO. The FS concept as pursued by social movements did not permeate Cuban policy making; until 2017 the use of the term FS is not found in key official documents of the PCC and Constitutions. This runs contrary to some statements that Cuban leadership has committed to or is pursuing FS (Rosset, 2009; Simon-Reardon and Aleman-Perez, 2010; Febles-González *et al.*, 2011; Clausen, Clark and Longo, 2015; Graddy-Lovelace, 2018) or that it is included in policy as in other States such as Venezuela (Koont, 2011; Gürcan, 2014).

4.3 Geopolitical rupture and the Special Period in Time of Peace

While aiming to consolidate national sovereignty through modernisation and the fostering of economic growth, in the geopolitical context of rampant imperialism (both under the Soviet Union and the US) and the US blockade[32], Cuban strategy provoked an ecological, socio-

[31] In a similar fashion as in China (Tse-Tung, 1927; Wolf, 1969; Huang, 1975)
[32] For more on the impact of the blockade in Cuba see Davalos-Fernandez (2012) and the Blockade Report: Report on Cuba in relation to the 72/4 resolution of the UN General Assembly (UN General Assembly, 2018).

economic and financial crisis. The crisis of 'the Special Period in Time of Peace' (hereafter termed "Special Period"), a war-like emergency although during peacetime, was declared by the PCC IV Congress in 1991 when the Soviet bloc signed its dissolution. The nation's capability to access inter alia - agricultural inputs, machinery, food, and fuel through trade with the Soviet bloc, was reduced to the point that the country was paralysed economically. The impact of the Special Period on the agricultural sector has been analysed elsewhere (Deere, 1992; Rosset and Benjamin, 1994; Chaplowe, 1996; Altieri *et al*., 1999; Murphy, 1999; Funes-Aguilar, 2001; Wright, 2005; Premat, 2012; Wilson, 2014). The combined impact of the Soviet dissolution and US blockade left Cuba in an almost unique economic isolation and constrained in its capability to meet the needs of the population (Davalos-Fernandez, 2012). Cuba faced the crisis with a manifold response, demonstrating the leadership's pragmatic and mixed approach to development, as well as the complex relationships at the core of the Marxist-Leninist socialism in Cuban State-civil society structure constructed since the winning of the Revolution. As described in the following sections, the response to the Special Period had key historical ramifications that determined the future of agrarian relations in the country. It also impacted on national and global perceptions of sustainable agriculture and adoption of concepts such as agroecology and FS, themes with which this research engages further in chapter 5.

4.4 The Special Period in Time of Peace transforming agrarian relations

The Special Period brought to the fore the developments achieved by the Revolution as well as social, ecological, and economic contradictions in Cuban agrarian relations, which had been brewing for three decades (1959 - 1990). These arouse from the industrial model of development and its ecological exploitation, the division of labour and division between countryside and city, and the pattern of isolation and dependency generated in the geopolitical communist-capitalist dichotomy. The mixed strategy, highly industrialised agriculture alongside initiatives for soil protection and environmental conservation, as stated in the debate about the agrarian question, was maintained in the political narrative of the government and re-emphasised in the PCC III Congress in 1986. At that stage, technological advancement combined with strong handling of capitalist tendencies within the peasantry continued under the campaign for *"rectification of errors and negative tendencies"* (Deere, 1992:3). This included the first elements of a key development programme, the National Food Programme, through investment in an ambitious hydraulic irrigation system and two initiatives that can be characterised as the sustainable element within the overall mixed strategy: the "*Plan Turquino*" to spur coffee and cacao production as well as stopping migration from the mountains, and the continued focus on biological control. Additionally, there was a new impetus to collectivise

peasants and close the *campesinos*' markets that had been opened in the 1980s, as it was considered that the free market had led to too much enrichment and inequality (Deere, Meurs and Pérez, 1992).

These initiatives had not fully taken off by the time the Soviet bloc finally dissolved, which marked the beginning of a more explicit exposure and implementation of the pragmatic and flexible leadership's mixed strategy on agriculture, to the extent of reconsidering the role of the peasantry and sustainable agricultural initiatives while maintaining the State centred-production and industrialised agricultural model. Deere's (1992) pioneering study of the National Food Programme and its relations to food security in Cuba provides valuable insights for understanding this point. She explains that just before the declaration of the Special Period and with the reduction of sugar production, the leadership focused on four initiatives, namely: "The beginning of ecologically beneficial agricultural practices, new forms of organising work, public recognition of the productive role of the private sector, and nation-wide stress on self-provisioning" (Deere, 1992:33). She reckons that while continuing with industrial production for the National Food Programme, this was the State's first move to fully acknowledge peasants' production (Deere, 1992). Specifically, 140,000 part-time peasants - wage workers or retired people, mostly landowners but also squatters on unused land and even sharecroppers, with average landholdings of 2has, who had not been included in ANAP - were targeted by the State and ANAP to volunteer to join the State enterprises and Agricultural Production Cooperatives (CPAs) and so to produce for the National Food Programme (Figueroa *et al*., 1990 in Deere, 1992).

Similarly, the increased urbanisation and lack of rural labour because of the modernisation process of agriculture and conversion of peasants into workers, was evident (Deere,1992). Thus, under the reorganisation of labour, the government launched voluntary work through "contingents, mobilizations and campaigns" - in which urban people were brought to the countryside and the remaining rural independent peasants provided role models under the emulation and moral incentives campaign.

Alongside the leadership's moving of urban dwellers to work in the rural State fincas and CPAs, at the end of the 1980s there was also a growing number of people producing food in the cities and around them independently as part of the National Food Programme. Around 20,000 has of land around Havana was to be recovered from sugar production and devoted to the production of vegetables (Murphy, 1999:7). Despite the modernisation of agriculture and collectivisation of labour, there had been always a body of independent peasants who maintained their land and their farming practices, particularly in Western, Central and Eastern

parts of the country[33] (Machin-Sosa *et al*., 2013). Also, there was a growing number of people cultivating vegetables, tropical roots and tubers and other plants (Rosset and Benjamin, 1994; Chaplowe, 1996; Murphy, 1999; Premat, 2012). There was also a retrieval and expansion of traditional farming practices that had survived over time, including multiple cropping or polyculture approaches on medium and small-scale plots for subsistence and semi-economic purposes (Leyva-Galan and Pohlan, 1991; Casanova, Quintero and Hernandez, 2001). In addition, there were initiatives by members of the armed forces who were experimenting with organic fertilizers. Raul Castro, Ministry of the Revolutionary Armed Forces at that time, urged people to extend the organoponic production of vegetables in any available places in the city. Although, this technique was not without detractors; it was not believed that food could be grown using only organic fertilizers (Funes-Aguilar, 2001).

Notwithstanding the PCC's focus on land concentration through large state enterprises and collective production, there were forms of small-holding even before the Special Period, some with ownership and others as land squatters (Valdez-Paz, 2009). Deere reports that in 1990 there were 148,000 non-peasant small holders who were not members of ANAP, with the latter having a membership of 185,635 of whom 123,505 were peasant farmers and 62,130 cooperative members (Deere, 1992:note5). The official number of people with small plots of land increased from 1991 with the enacting of Decree Law 125/91 which dealt with possession, ownership and inheritance of land and agricultural goods, and allowed for the provision of unused State land under usufruct (only with the right to use) for indefinite lengths of time, for production of coffee, tobacco (for export) and family self-subsistence (Consejo de Estado, 1991). Resolutions 356/93 and 357/93 followed in 1993 (Ministerio de Agricultura, 1995), when about 11,200 women received small plots (0.2has) to produce tobacco, coffee, cocoa, and vegetables (Pages, 2000).

A historical event showing more explicitly the pragmatic mixed approach to development in Cuba was Fidel Castro's speech at the UN's Earth Summit (Castro, 1992). Since then, "sustainable development"[34], was included in the constitution (which was amended that year), alongside the original vision of industrial development (Asamblea Nacional del Poder Popular, 1992). The sustainable development approach reinforced the leadership's commitment to work towards national sovereignty and self-sufficiency. This commitment and Fidel Castro's stance against imperialist plunder at the UN's Summit, might explain why some stated that

[33] Wolf's (1969) accounts of the Cuban Revolution mentioned that poor peasants in these areas were the ones who fought the Revolution.
[34] The definition adopted in the constitution resonates with the one agreed in the World Conference on Environment and Development (World Commission on Environment and Development (WCED), 1987).

food sovereignty was pursued by the leadership (Simon-Reardon and Perez, 2010).

The sustainable development approach followed key policy decisions between 1993 and 1995, including dismantling of under-performing, oversized State enterprises, and handing land in usufruct and production responsibilities to workers, through the State-led formation of a specific type of cooperative, the Unit of Basic Production Cooperative (UBPC)[35] (Concejo de Ministros, 1993). Although it is said that the structure of land ownership changed (Clausen, Clark and Longo, 2015) or that "most farmers privately own their land" (IPES-Food, 2018), strictly speaking what changed was rather land management and tenure, which remained State ownership. From the perspective of agrarian law, Ramon-Philoppon (2011) reckoned that the "UBPC is a hybrid between a State property and cooperative property type". Through the same Decree Law 142, 101,588has of land was redistributed in usufruct in the form of small plots (4.3 to 0.5 has). As in previous Resolutions, this was also to encourage mainly export crops "(cocoa, coffee 4.3has, tobacco, 2has and food for self-consumption 0.23ha)" (Nova-Gonzalez, 1998:4). Another policy, reversing previous leadership reluctance towards private markets, was the reopening of agricultural *campesinos*' markets in 1994 (Ibid) and launching of the National Food and Nutrition Plan (evolved from the National Food Production Plan initiated in 1986).

An important milestone in the development of sustainable agriculture in the Special Period was the work on organic agriculture by a group of independent professionals and technicians, leading to the formation of the Cuban Association of Organic Agriculture (ACAO) in 1993 (Funes-Aguilar, 2001). This emerged as "an initiative to apply organic concepts in training and research as a tool to influence the productive sector and develop ecological agriculture" (Funes-Aguilar and Funes-Monzote, 2009:4178). One of the first initiatives of ACAO, aimed at training teachers, scientists, agronomists and producers, was the Agroecological Lighthouse initiative, in Havana in 1993 and subsequently implemented across the country. Another initiative was mobile libraries which travelled around the country to stimulate agroecological production, research, and education. Similarly, in 1993, permaculture reached Cuba and were taken forward in urban agriculture by the Foundation Antonio Nunez Jimenez for Nature and Man (FANJNH). The development of permaculture contributed to the development of organoponics and the spread of organic agriculture, but with an integral-holistic approach that Maria Caridad Cruz-Hernandez coined "permaculture *criolla"* (Cruz-Hernandez, 2016). Permaculture *criolla* is a Cuban contextualised permaculture responding to the idiosyncrasies and history of the Cuban people, based on a balanced relationship

[35] See description of this cooperative in Appendix 4.1.

between nature and people to build communities rather than only focusing on ecological production (Ibid). Alongside these efforts towards an ecologically friendly agriculture across the country, there were those of the Cuban Association of Agriculture and Forestry Technicians (ACTAF), the Council of Churches of Cuba (DECAP), the Cuban Association of small Livestock Producers (ACPA) and the Experimental Station-*Indio Hatuey* (Blanco *et al*., 2018).

4.5 The officialization of grassroots urban agriculture

The first moves towards State institutionalisation of the movement of urban and suburban food producers into an official programme under the Ministry of Agriculture were with the creation of the Urban Agriculture Department in Havana province in 1995 (Murphy, 1999), then with the creation of the National Commission of Organoponic and Intensive Gardens. However, early study by Chaplowe reports that throughout Havana province there were already 26,600 small plots of land or '*parcelas*' being cultivated (1996). In 1997, the Organoponics Movement was fully institutionalised as the national Urban Agriculture Programme (UAP). In addition, he National Group of Urban Agriculture (*Grupo Nacional de Agricultural Urbana* - GNAU) was created by the Ministry of Agriculture and hosted by the National Institute of Fundamental Research in Tropical Agriculture (INIFAT), with the participation of 17 institutions and 7 ministries (Rodriguez-Nodals, 2014). The design of the UAP included a complexity and diversity of people, forms of production and methods involved at grassroots level, and the interaction with State institutions (see description in Table 4.1). The UAP's objectives were similar to those of the National Food Programme and the National Food and Nutrition Plan which was implemented across the country in 1994 with a "combination of alternative practices with those of the industrialised model" (Wright, 2005:209).

Table 4.1 Urban Agriculture Programme by 2000

Urban agriculture is the production of food within the urban and suburban perimeter applying intensive practices, bearing in mind the interrelation between -people-crops-animals-the environment and facilities of the urban infrastructure which propitiate labour stability, production of diversified crops and animals throughout the year, based on sustainable management that allows waste recycling and based on the following principles:
1. Uniform distribution across the country.
2. Direct relationship between planned production and number of people in place.
3. Close interrelation between crop and livestock production to maximize the increase of both systems.
4. Intensive use of organic fertilizers, biological controls, preserving the fertility of soils and substrates.
5. Use of each available area to produce food in an intensive way to obtain high yields in crops and livestock.

6. Multidisciplinary integration and intense application of science and technology.
7. Maintenance of provision of fresh products and a guaranteed balance of production of no less than a daily 300gr per person of vegetables and adequate sources of animal protein. Maximising all sources to produce food: labour force, residuals and sub products for plant and animal nutrition.
Farming Systems
Organoponic: production of vegetables, fresh and dry spices and medicinal plants.
High yields organoponics
Intensive gardens: direct sowing into the soil - an intense cultivation process with yields similar to a greenhouse but with low costs, only using organic matter.
Protected crops or '*cultivo tapado* ' where greenhouses are developed using Spanish, Israeli and Cuban technology to produce crops and seedlings throughout the year.
Microgardens: small family production of vegetables and fresh spices.
Parcelas*:* production of vegetables and mixed crops and some integration of livestock.
State enterprises and institutions producing for self-consumption: mixed cropping and livestock production in fincas for subsidised food provision to workers and sales to workers and the population.
Home gardens or patios: householders' self-provision of herbal medicines or spices in recycled containers.
Suburban fincas: fincas with mixed cropping, livestock, and fruit trees.

Areas already in production up to 2000	**Areas in the initiation phase in 2000**
Vegetables and fresh spices	Control and use of land
Medicinal plants and dry spices	Irrigation and drainage systems
Ornamental plants and flowers	Forestry, coffee, and cocoa
Organic fertilizers	Popular plantain
Seeds	Tropical roots and tubers
Fruits	Oilseed plants
Popular rice	Beekeeping
Protected crops	Rabbits
Beans	Goat and sheep rearing
Animal feeds	Aquaculture
Poultry	Small agroindustry
Pig rearing	
Cattle	
Commercialisation of production	
Science, technology, training, and the environment covering all areas of the	

Source: (GNAU, 2000 in Companioni *et al*., 2001)

The UAP included urban and suburban areas, a mix of sustainable practices with other technologies and a mix of production and commercialisation. The inclusion of suburban agriculture (or the suburban perimeter as per urban agriculture definition) can be related to the fact that government was seeking to maximise production in all available areas, regardless of their differing contexts (Murphy, 1999). Although suburban agriculture at this stage was mainly related to *fincas* and *parcelas* with a more rural characterisation and production than urban (Burnett and Murphy, 2014; Cruz-Hernandez, 2016), they were included as urban agriculture. Nevertheless, this marked the beginning of official inclusion of suburban food

production and commercialisation as urban agriculture, although food production around the cities had been practiced before with industrialised methods, for instance using Hydroponics, and in *parcelas* and small *fincas* (Deere, 1992), without this being defined as urban agriculture. In these terms the Urban Agriculture Programme was institutionalised as an innovative and holistic approach to respond to a national structural crisis affecting the country across rural towns and urban cities. By 2000, it included areas such as small-scale agroindustry and aquaculture, the latter responding to the stop in off-shore fishing heavily supported by the Soviet Union (Adams, Sanchez-Vega and Garcia-Alvarez, 2000). It was an initiative combining the movement of people (including established producers in rural towns and around cities, new urban producers, independent researchers focusing on ecologically friendly agriculture national and international NGOs and some government officials) supported and beginning to be centrally structured under institutional support. From this movement, the leadership would create later the official Suburban Agriculture Programme, inheriting the institutional structure of the UAP but diverging in other aspects as found in this research.

4.6 The 2008 crisis: land redistribution and the Suburban Agriculture Programme

The economic measures taken during the crisis of the Special Period, such as, downsizing State enterprises, formation of the UPBCs, and the re-opening of agricultural markets, had shown mixed results. The performance of the UBPCs and State enterprises were below expectations (Nova-Gonzalez, 2008; Valdez-Paz, 2011). Regarding the sustainable aspect, some ecological practices were adopted by the latter (Wright, 2005). Productivity was particularly high among independent *campesinos* and Cooperatives of Credit and Services (CCSs) (Nova-Gonzalez, 2008; Matias-González and Artiles-Beltran, 2016). From the UAP angle, from 1997 to 2007 the programme expanded to 158 municipalities, where it proved to be successful in production and food provisioning in cities whilst using very low inputs, recycling materials as well as creating employment (GNAU, 2007 in Knoot 2011). By 2007 the programme included 28 subprogrammes in both urban and suburban areas, including agroecological integration and semi-protected organoponics, with the aquaculture programme being excluded (see Table 4.2). Urban and suburban agriculture had become differentiated, because the suburban included semi-protected organoponics and organic rice production which needed bigger plots of land not available in urban areas. It also included pig rearing which started to be prohibited in urban centres for health and sanitation reasons.

Table 4.2: Urban and Suburban Agriculture Subprogrammes in 2007

Crops	UA	SA	Animals	UA	SA	Support	UA	SA
Vegetables and fresh spices	X	X	Poultry	X	X	Control and use of land	X	X
Medicinal plants and dry spices	X	X	Rabbits	X	X	Organic fertilizers	X	X
Flowers and ornamental plants	X	X	Sheep	X	X	Agroecological pest control	X	X
Fruit trees	X	X	Goats	X	X	Animal health	X	X
Popular plantain (small-scale)	X	X	Pigs		X	Seeds	X	X
Roots and tubers	X	X	Cattle	X	X	Marketing	X	X
Grains (bean, maize and sorghum)	X	X	Beekeeping and pollination	X	X	Use and management of water	X	X
Forest, cocoa and coffee	X	X				Small agroindustry	X	X
Popular rice (small-scale)		X				Logistics	X	X
Semi-protected organoponic		X				Education and training	X	
						Operations and control	X	X

Source: (GNAU, 2007 in Knoot, 2011)

Despite the land redistribution legislation during 1991 to 1995, and efforts to bring people to the countryside including housing programmes near the State *fincas*, migration to the cities continued. The rural population reduced from 56% to 28% between 1959 and 1989, and to less than 20% in the mid-1990s (Nova-Gonzalez, 2013a). In 2007 there was a slight increase to 24.4% but in 2018 this reduced again to 22.6 % (United Nations, 2008; ONEI, 2017d)[36]. Moreover, the transformed peasantry not assimilated by the State *fincas* and industry had migrated to cities and towns, creating further pressure on food supplies in urban centres and maintaining the problem of labour shortages in the countryside. In parallel, from 1987 to 2007 the amount of idle land in the country increased to about 1.3 million hectares, representing 18.61% of the total agricultural land (ONE, 2008). This can be attributed to the dismantling of sugar cane production around suburban areas, and low productivity, particularly in State enterprises, CPAs and UPBCs (Nova-Gonzalez, 2008).

In 2007 Raul Castro comments on the increased amount of idle land and states: “we face the imperative of making our land produce more with oxen or with tractors…and to offer

[36] A studied on social inequalities and ruralness in Cuba shows six areas of inequity on access to services, level of education, housing, territorial infrastructure, class and economic differences and gender inequity (Lopez-Chavez, 2021) which can be related to rural migration to urban centres.

outstanding producers adequate incentives" (Castro, 2007). This task of putting idle land to work was one of the strategies in what he called "structural and conceptual changes". The urgency to put land into production "in every piece of land in towns and cities" was initiated in Camaguey province as a pilot scheme in 2007. In 2008, when Cuba was facing the impacts of a global food crisis and hurricanes Gustave and Ike and still heavily reliant on imports of food and other supplies, Raul Castro enact his speech in 2007 and puts in train Law 259/08 for the redistribution of idle land in usufruct (Ministerio de Justicia, 2008b) and linked to it, launched the national Suburban Agricultural Programme (SAP), which is the main focus of this research, discussed in detail in chapter 5.

The emergence of Suburban Agriculture Programme distinct from the UAP was closely linked to the need to put into production the idle suburban land in all regions in the country (that is in rural towns and settlements as well as cities), and to attract people into agriculture (Castro, 2009). Although the new programme was emerging from the UAP, it was connected to a systemic agrarian issue that was impacting both rural and urban areas. The issue was the ecological and social disruption caused by the path to modernisation and movement of people from rural to urban areas. The land redistribution with the creation of SAP, involved small and medium landholdings, in contrast with that of 1994 which was focused mainly on the creation of large UBPCs (see Appendix 4.2 for a comparison with the Laws on land redistribution). This land redistribution was more explicit in demonstrating that rather than being the problem, as stated in the resolution of the agrarian question in 1975, small-scale agriculture was part of the solution to some of the problems of the mixed approach development strategy.

The policy direction with the institutionalisation of UAP and the creation of the SAP was related to a national strategy. Thus, the overarching drive of the policy was a territorial approach despite both programmes being coordinated and focused on Havana province. This is reflected in the definition of the SAP (see Figure 3.1) and its link to the municipality as the politico-administrative unit rather than a physical division (MINAG-GNAUS, 2009). The SAP although linked to and emerging from the UAP, is not presented as a division of the territory between rural and urban or as an urban programme. This is also evident with the institutionalisation of three programmes the UAP, SAP and the Family Agriculture programme (which takes place across the territory) under the Urban, Suburban and Family Agriculture Programme (USAFP), the latter including directly rural production.

4.7 The Cuban socialist State and the 'Updating of the Socio-economic Model'

The Cuban State is based on the principle of "the alliance of the workers and the peasantry,

in which the proletariat leads the latter" (Rojas, 1978). In the first years of the Revolution, the use of the term 'proletariat' by Fidel Castro and/or official documents such as the Agrarian Question Thesis refers to waged rural and urban agrarian, and industrial worker (based on Karl Marx definition of proletariat) in a) the capitalist and private enterprises remaining in Cuba after the Revolution, b) workers in the socialist State enterprises and c) those in the newly formed socialist cooperatives. The term 'peasantry' refers to small-scale independent *campesinos*. There is no clarity on the situation regarding medium-scale forms of production, whether they are considered part of the proletariat State or as another class.

As such, the primacy of the proletariat as the leader of the peasantry and controlling other classes such as owners of private enterprises, reflects the Marxist-Leninist ideology of the proletariat State, on which the constitution is based (República de Cuba, 2019). The Cuban proletariat State rests on one-party political system and the Cuban participatory democratic-Style (Meurs, 1992). This was encapsulated by Fidel Castro as the socialist Revolution having the proletariat as its force and the Communist Party as its political vanguard (Rojas, 1978). This system is characterised by the hegemony of a political party, focused on the Party leader (Gramsci, 1971), and by the presence of mass organisations at the heart of the PCC, e.g. the workers' trade union, ANAP, the Cuban Women Federation, the Committees for the Defence of the Revolution and NGOs (República de Cuba, 2019). An example of the democratic participatory system in action were two consultation process behind Raul Castro's "structural and conceptual changes" in 2007 (Piñeiro-Harnecker, 2011)[37] and the "the Updating of the Socio-economic Model" in 2010[38] (or *Actualisacion del Modelo Socio-economico*) to reform the country's Policy Guidelines prior to the PCC VI congress. These consultations were followed a period of 12 years in which the PCC Congress (the main space for political debate) had not met. Both consultation processes were pre-empted by Raul Castro's assessment that the country needed to revaluate issues around productivity, the expansion of the private market and the functioning of the State (Castro, 2007, 2008, 2009, 2010). Cristina Piñeiro-Harnecker expresses that people commented on the proposed list of Guidelines, also that some argued that although these guidelines were dealing with key matters for Cubans - such as land rights, wages or labour relations - these were approved years before and the PCC's VI Congress was only a "'show' to ratify decisions already made" (2013:111). The outcome of the proposal for consultation in 2010 was the Policy Guidelines of the Cuban Social and

[37] Cristina Piñeiro-Harnecker comments there was a popular consultation prior to that in 2207 following the collapse of the Soviet Union (2013).

[38] For three months (November 2010 to Feb 2011) the proposed Guidelines were debated in the PCC base organizations and the Communist Youth Union, mass organizations such as trade unions, ANAP, students, women, and neighbours across the country (Castro, 2017). However, there were only few substantial changes to those Guidelines (Piñeiro-Harnecker, 2013).

Economic Socialist Model (the Socio-economic Model hereafter). These Policy Guidelines were scrutinised again in the PCC's VII Congress where the new version of the Policy Guidelines and the National Development Plan to 2030 were sanctioned (Partido Comunista de Cuba, 2017b, 2017a).

4.8 The Cuban economy within the socialist development model

Cuba's socialist development model has two overarching foundational principles, the first is social ownership (people's ownership) of the fundamental means of production with the State acting as representative of the people with allowance for private ownership. The National Office of Statistics and Information report this as State and non-State actors or State and private actors (see Table 4.3). The second is that the economy is State centrally planned, as opposed to market regulated, but with allowance for supply-and-demand market relations (or private markets under agreed prices (or *precios acordados)* (Ministerio de Justicia, 2013).

Table 4.3: Cuba's land ownership and forms of organising production in 2017

	Form of Organising Production	Management	Ownership
State production			
Socialist State	State enterprises	State Granjas of New Type (GENT)	79%
		State Granjas of the Ministry of Armed Forces (MINFAR) Incluiding the Youth Workers Army (EJT) and the Ministry of Interior MININT	
		Self provisioning of Work Centres and State Institutions	
Mixed	State – Foreign enterprises	State -Mixed enterprises (including foreign investors)	
Non-State production			
Collective	Cooperatives	Cooperatives of Agricultural Production (CPA)	7%
		Basic Units of Cooperative Production (UBPC)	Usufruct
		Cooperatives of Credits and Services (CCS)	Usufruct
Individual	Individual-independent	Campesinos (Individuals and family in fincas and parcelas)	Usufrcut
	Individual	Independent *Campesinos* Individuals and family in *fincas* and *parcelas*	14%

Source: Prepared from (Garcia-Alvarez, Tejeda-Gonzalez, and Hernandez-Morales, 2014; Provincial, 2016; ONEI, 2017e)

Agricultural production and distribution are predominantly State managed regardless of whether production is by a State enterprise, cooperative or independent landowners, as national production targets are based on the country's needs/demands and are allocated to almost all producers. Commercialisation of agricultural inputs and machinery is exclusively through State enterprises. This means that the State controls the political and economic

domains and is involved in generating capital itself and in regulating capital generation by all actors in society.

The opening of markets for the sale of produce that is surplus to State targets has been critical in the Socio-economic Model. Agricultural *campesinos*' markets (under supply-and-demand) were first open in 1980 then closed in 1986 and reopened in 1994, the closure associated with the leadership curtailing capitalist tendencies and the reopening to deal with problems with the State enterprises' handling of the commercialisation process (Nova-González and Figueroa-Alfonso, 2018). The existence of agricultural markets appears contentious for the leadership for both political and economic reasons: opening up markets offers the possibility of expanding the local and national economy but on the other hand the State can lose control over the 'peasants' who can 'enrich themselves', (the reason for closing markets in 1986). This is a political issue, as arguably greater economic power means greater political power, the very issue that needed to be controlled in the debate about the agrarian question.

With the updating of the Socio-economic Model, a guiding policy was approved, allowing an extension of the supply-and-demand market in three provinces, Mayabeque, Havana and Artemisa, as a pilot experience. This was called the decentralisation of the commercialisation of agricultural produce (Partido Comunista de Cuba, 2017a). A key aspect of this policy is that although it creates space for producers to sell surplus food to private small restaurants (Ministerio de Justicia, 2013), it also critically reforms the commercialisation system in that non-producer intermediaries (small and large) and State enterprises can now enter into the private market through the network of wholesale and small retailers (ibid) (see Figure 4.1 for list of actors in the commercialisation system). All producers, regardless of capacity, (i.e. independent enterprises and mixed enterprises) and intermediaries compete in the network of retailers under the system of 'agreed prices', self-regulated by the market; commonly known in Cuba as private markets. The expansion of private commercialisation is in line with the PCC target of creating individual forms of employment (*cuentapropismo* or self-employed work) to cope with the loss of State jobs. In this system there is no trade in inputs such as seeds, manure, machinery or biological controls; these are sold by the State enterprise directly to producers under a production contract (Garcia-Alvarez, Tejeda-Gonzalez, and Hernandez-Morales, 2014).

Figure 4.1: Food distribution system

1. Commercialisation of State regulated food (family food basket): distribution of food through this mechanism is through bodegas (ration system stores) and butchers (within the ration system) using the ration system *libreta de abastecimiento* (ration book). This also includes *consumo social* (social feeding). This means food provisioning to schools, nurseries, hospitals, homes for the elderly and houses for pregnant women. State regulated food is secured through State planned contracts with all type of producers and is managed by *Acopio*'s Provincial Enterprise, Agriculture Enterprise '*Frutas Selecta'* and *Granja Urbana*.
2. Commercialisation of non-regulated food by State enterprises: Surplus production of State farms and enterprises through State agromarkets, the Youth Workers Army's (EJT) agromarkets and Municipal Agricultural Fairs.
3. Commercialisation of non-regulated food by private actors (network of wholesale and small retailers): Surplus food produced by cooperatives and individual producers is directly commercialised at the fincas, organoponics, in private agricultural markets or through intermediaries e.g. *cuentapropistas*, under agreed prices.
4. Commercialisation in the Stores for Foreign Currency Collection Shops (*Tiendas Recolectoras de Divisa* -TRD), mostly imported food and managed by State enterprises.
5. Commercialisation in the informal economy and black market: undertaken by individuals.

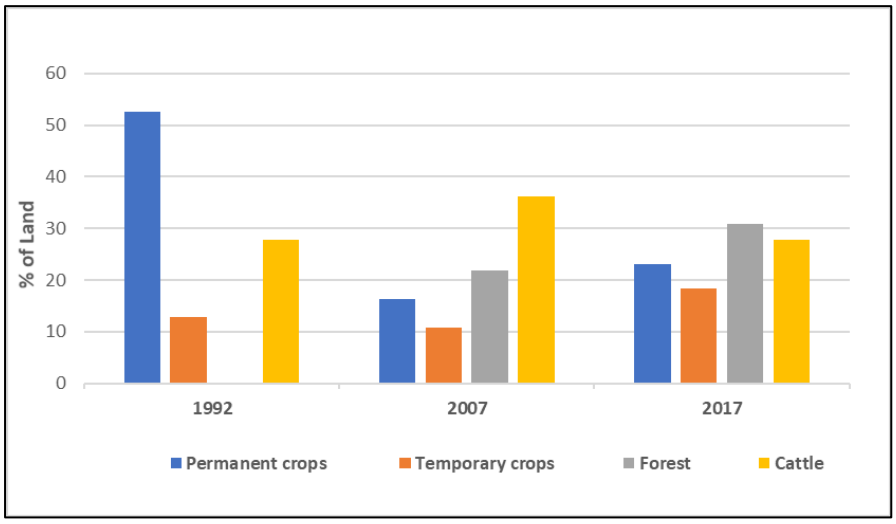
Source: (Garcia-Alvarez, Tejeda-Gonzalez, and Hernandez-Morales, 2014)

The dual economic system of central planning and private market is for some the direction that the country is taking - or should take - towards market socialism (Nieto and Delgado, 2001; Nova-Gonzalez, 2013). This reflects the direction envisioned by Raul Castro in his speech to the PCC VII Congress "the supply and demand market and planning can coexist and complement, as is the case of China and Vietnam" (Castro, 2016). Similarly, the Cuban leadership's political stand against international corporations and imperialism in order to protect national sovereignty does not preclude the country's open policy towards international trade and attracting foreign investment, also stated by Raul Castro. Foreign capital investment must be in mixed State-private capital ventures in areas prioritised by the PCC, for example the "Special Development Zone in Mariel Port" (the Mariel hereafter). The Mariel covers sectors of industry, tourism, and agriculture, e.g., production of meat and vegetables for both national consumption and export.

Despite structural transformations affecting the agricultural and agroindustry sectors, the legacy of export commodity continues to permeate Cuba's economic strategy. For instance, the pattern of land use has not been transformed, with priority given to permanent crops (e.g. sugar cane, coffee, cocoa and fruit trees), or investment in sectors generating hard currency, e.g. cattle rearing as demonstrated in selected years (1992, 2007 and 2017, see Figure 4.2). The smallest percentage of land is used for temporary crops which provide most of the basic diet of the population (roots, tubers, grains, and vegetables) and tobacco. Until the 1990s,

agriculture was Cuba's main revenue source, but since then it has been overtaken by foreign exchange through medical services and tourism, reflecting greater investment in these sectors (Gabriele, 2011; Spoor and Thiemann, 2016).

Figure 4.2: Cuba's agricultural land use in years 1992, 2007 and 2017

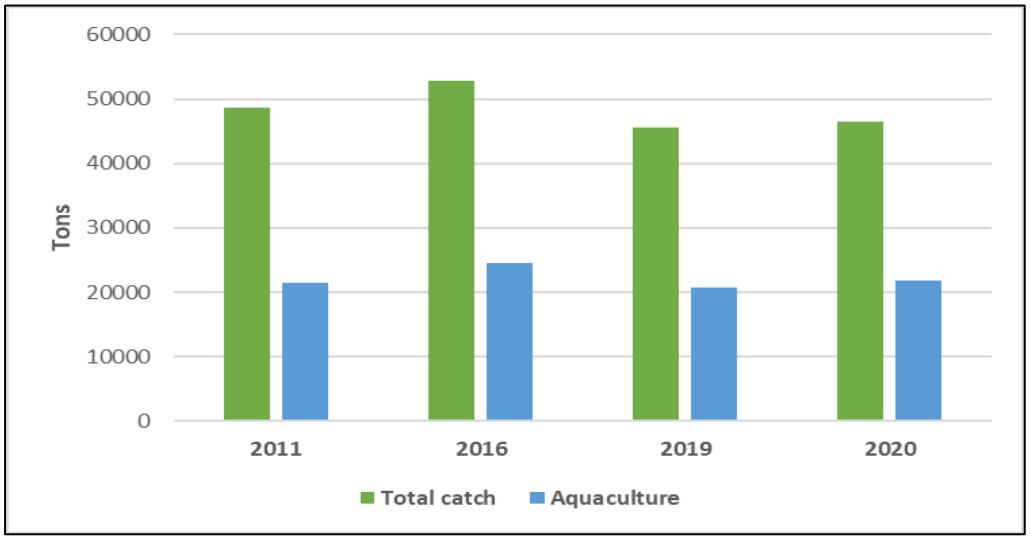


Source: Prepared from (ONE, 2008; MINAG, 2017a; ONEI, 2017a)

Cuba being an Island, strategically located and with a high diversity of species, its fishing industry was highly developed with the support of the Soviet Union, both as nearshore and deep-water fishing, to meet national consumption but primarily for export (Adams, Sanchez-Vega and Garcia-Alvarez, 2000; Baisre, 2018). However, with the collapse of the Soviet Union, the tightening of the US blockade (Adams, Sanchez-Vega and Garcia-Alvarez, 2000), overfishing and environmental changes, this industry has been seriously affected (Baisre, 2018). Before the Special Period fish and seafood national consumption were met by nearshore fishing and/or through imports funded by the revenue from commercial fishing exports (Adams, Sanchez-Vega and Garcia-Alvarez, 2000). After the Special Period, aquaculture activities increased to respond to the gap in production. Adams, Sanchez-Vega and Garcia-Alvarez, report that from 1996 to 1999, 47.4% of the total catch was from aquaculture compared to 6.6% in the period 1980 to 1989 and 16.3% in 1990 to 1995 (2000). Currently most aquaculture activities are carried out by 15 State enterprises, with 473 reservoirs meeting 70% of Cuba's freshwater fish production (van der Heijden and Verdecia-Batista, 2020). The fishing industry, including aquaculture, showed a small increase from 2011 to 2016, with a decline in 2019 but picking up slightly in 2020, as presented in Figure 4.3 (ONEI, 2017b, 2020, 2021). This shows that fishing activities, including aquaculture, have been maintained despite the challenges of droughts and hurricanes (van der Heijden and Verdecia-Batista, 2020) and the depletion of the most profitable fisheries (shrimp, spiny lobster

and tunas) (Baisre, 2018). In fact, Baisre's study stresses that production is rather low and fishery resources in the country are at a critical point (Ibid).

Figure 4.3: Cuban fisheries and aquaculture production between 2011-2020



Source: Prepared from (ONEI, 2017b, 2020, 2021)

As prior to the Special Period fishing is still primarily targeted for exports - for instance part of the portfolio to increase revenue through foreign investment includes sport fishing and commercial fishing for exports (Ministerio del Comercio Exterior y la Inversion Extranjera, 2017). However, the country still imports fish (ONEI, 2016; Baisre, 2018). A relevant point is that fishing is counted more as a key product to gain revenue rather than by its contribution to population's nutrition/protein intake. In this respect, it is worth to point that the National Food Nutrition Plan in 1994 and the current National Plan for Nutrition do not include fishing or aquaculture. Moreover, the version of the Urban Agriculture Programme by 2007 excludes the aquaculture subprogramme included in year 2000 (see Tables 4.1 and 4.2). As for agricultural production fishing activities in the national statistics presented by ONEI's annual reports are not disaggregated by location, whether it is under urban, rural or suburban.

4.9 Cuban agriculture within the updated Socio-economic Model

The historical seeds of the Cuban socialist approach to agriculture can be traced in the resolution of the agrarian question, with the insertion of the political voice of the peasantry within the proletariat State, the dismantling of anarchists pursue for a different approach to the State and its centralisation; as well as the opportunities for ecological technologies and practices created - coexisting with industrialised practices - during the crisis of the Special Period, including the new recognition of peasant agriculture since the 1990s. Following the

updating the Socio-economic Model, the mixed approach towards agriculture and agroindustry (or simply "agroindustry" as combined in PCC official documents) became fully explicit in policymaking and Laws (Partido Comunista de Cuba, 2016, 2017a, 2017b; República de Cuba, 2019). The Policy Guidelines and the Development Plan present both development of a commodity export-oriented sector based on conventional agro-industrial practices, and another sector focused on low input and sustainable practices. The first includes the State programme for exports and national consumption implemented with industrial methods, combined with biological agriproducts, known as *Polos Productivos* (see Appendix 4.3 for details). The second aspect is undertaken in the Urban, Suburban and Family Agricultural programme[39] (USAFP) which is expected to be developed on a self-sufficient basis (with a low to zero use of agrochemicals and low inputs), localised in the municipalities, and the "*Plan Turquino"* (Mountain and Coastal Areas Programme) which integrates the production of food and coffee for export with sustainability of the ecosystem and a high level of social integration (Garcia-Alvarez, Tejeda-Gonzalez and Hernandez-Morales, 2014), as originally introduced in the resolution of the agrarian question (Rojas, 1978). These contain the paradox, in policy and in practice, of the development of a model of agriculture, akin to both capitalist conventional technologies/practices and Marxist-Leninist socialist ideology. The approach to agriculture continues to include both industrialised agriculture and protection of the environment through sustainable practices for input substitution and self-sufficient sustainable programmes in which remaining independent *campesino/as* are requested (under Law 259 on land distribution) to associate with cooperatives, to contribute to the national development strategy (Ministerio de Justicia, 2008b).

Moreover, all the productive lines in each agricultural programme, regardless of whether they use a conventional or low input-sustainable approach, are supported by the network of institutions, programmes and policies operating across the country. This shows the historical coexistence of research and industrialised agriculture with some ecological practices, which characterises both the Cuban leadership's emphasis on developing science and technology to advance national sovereignty and progress, as well as the work of some scientists, producers and national organisations to move towards a more ecologically friendly approach (Wright, 2005). The technological emphasis on industrialisation is reflected in the "technological sovereignty" ambition enshrined over time in the three national constitutions and the current Development Plan (Partido Comunista de Cuba, 2017b; República de Cuba, 2019). The leadership's investment in 'technological sovereignty' in the agricultural sector includes - inter alia - research on soil protection and development of extensive irrigation

[39] In 2014, the PCC stated that family farming should be added following the FAO year of Family Farming.

systems, biological products, integral pest control, and commercial monoculture based on genetically modified organisms (GMOs) (for more detail on the GMO debate in Cuba see Funes-Monzote, and Freyre-Roach, 2009; Wright, 2009; Altieri and Funes-Monzote, 2012).

4.10 Agroecology in Cuban agriculture: a shift in vision?

The Special Period, the crisis of 2008 and the updating of the Socio-economic Model have put to the test the one-party State socialist development model with its foundations on the decision about the agrarian question, which persists in Cuba and with the leadership's own pragmatic style. This is evident in how the ideological position regarding the protection of the environment and the 'sustainable development' narrative is used. It has provided space for programmes run under sustainable low input practices, including organic agriculture and agroecology, (based on input substitution and low inputs), alongside the primacy of industrialised agriculture.

It can be argued that years of policymaking based on the agrarian question's decisions - e.g. industrialised agriculture for development, disregarding individual traditional agriculture - was to an extent put on the spot again by Fidel Castro's speech at the UN conference on Environment and Development. Although he focused on protection of the environment based on exposing global imperialist plunder and defending national sovereignty, intrinsically he also questioned the impact of the industrialised model on the environment, whether under capitalism, Marxist-Leninist socialism, or other mode of production based on exploitation. This is even more evident bearing in mind both the dependency on the Soviet bloc and US blockade as contributing factors to the environmental, economic, and financial crisis faced by the country in the 1990s. However, the contextualisation of Castro's presentation of the 'sustainable development' narrative in Cuba can be interpreted not as moving away from the industrialised model (led by science and technology) for national sovereignty, but as stressing the input substitution tool through promoting sustainable practices and technologies in specific projects. Thus, the official narrative of sustainable development was woven into the input substitution strategy that has existed in the country since the 1970s, under the leadership's support for research on biological methods to control diseases/pests and soil depletion to support the industrialised approach, rather than a change towards a systemic approach to agriculture (for this approach see Perfecto, Vandermeer and Wright, 2009).

The Cuban leadership's mixed approach has been enunciated in some studies carried out during and after the Special Period, where agricultural policymaking is described for instance as "ambiguous agricultural policy…" (Wright, 2005:272). This was also evident in 1994 in the

design of the National Food and Nutritious Plan, one of its objectives being to "combine alternative agricultural practices with those of the industrialised model" (Wright, 2005:209). Similarly, others highlight that within the government officials and State institutions e.g. science and education, there are fractions that are ready to use industrial methods as soon as there is availability of inputs (Caballero-Grande and Vazquez-Moreno, 2016; Rosset, 2016).

Relevant literature[40] documenting the history of agroecology in the country shows that the use of the term/concept agroecology and its development is also ambiguously or closely related to organic, sustainable agriculture or undifferentiated with traditional agriculture. Moreover, the focus is on the technological aspects of ecology and economy of organic and agroecological agriculture. This perhaps reflects, as Funes-Aguilar recalls, that there was a legacy of organic studies among Cubans, reignited with the work of ACAO (2001). Equally importantly, the term agroecology was just entering the country through the first trainings of technicians, professionals and producers led by Miguel Altieri, funded by the UNDP and Peter Rosset from Food First in the Agroecological Lighthouses project run by ACAO in 1993 (Rosset, 1997). It is worth referring to the history of the conceptualisation of agroecology internationally, presented in chapter 2, to understand the logic behind the concept of agroecology that was introduced into Cuba, namely its ambiguity between organic, ecological agriculture, sustainable agriculture and traditional peasant farming and its emphasis on technological aspects. The development of organic agriculture and agroecology as a technological tool was to an extent in line with the input substitution strategy pursued by the Cuban leadership. Moreover, neither the official narrative nor the pioneers of the concept of agroecology in the country associated it with the FS framework as has come to be proposed internationally.

The introduction of agroecology in Cuba can be understood as part of the web of relations and processes at the heart of the State-civil society relationship and the State's hegemony to educate and create consent (Gramsci, 1971). There is an internal web of relations between, for instance, government officials, science, community and NGOs influencing each other with different degrees of power. This is reflected in the trajectory and legacy of the work of ACAO, how organic agriculture and agroecology permeated producers, national NGOs, ANAP and the official narrative. An example of this is the transformation of ACAO into a dependency of a State-led institution the ACTAF (for more on this process see Wright, 2005) and the use of

[40] including two compilations of 52 articles, most by Cuban authors, in Funes-Aguilar *et al*. (2001) and Funes-Aguilar and Vazquez-Moreno eds (2016) and the book of Machin-Sosa *et al*. (2013) documenting ANAP's adoption of agroecology.

‘organic terminology’ alongside industrial agriculture in the official narrative. Another example is the adoption of agroecology by ANAP in 2001. This adoption however did not mean a change of ANAP’s policy regarding the resolution of the agrarian question, but a consolidation of the mixed strategy - although not often made explicit. This is because ANAP is an active member of the PCC and a key actor in implementing the leadership policy, therefore covering all agricultural programmes, whether industrial or sustainable. Having said this, ANAP is widely acknowledged for its influence on the spread of agroecological practices among producers, particularly in rural areas (Machin-Sosa *et al*., 2013; Gliessman, 2018), with the Agroecological Movement *Campesino* to *Campesino* or *Movimiento Agroecological Campesino a Campesino* (MACaC).

4.11 Summary

This chapter presented the historical processes of Cuban agrarian and socio-economic relations prior to the Revolution to the updating of the Socio-economic Model, in which the SAP emerged. These include the historical implications of the implementation of the Cuban leadership’s Marxist-Leninist ideology - with its rejection of other paths to socialism such as anarcho-syndicalism’s ideology exiting in the country - regarding the country’s development strategy to achieve national sovereignty and the socialist ‘sustainable development’ amid pivotal geopolitical relations between the US and the Soviet bloc. These circumstances shaped the current agrarian structure, enshrined in the constitution, and the Policy Guidelines and Development Plan until 2030. It involves the impacts of two crises, the Special Period and the global crisis in 2008, on opening space for the disregarded aspect of the mixed approach to agriculture, that is the role of the peasantry and its mode of production as well as for sustainable approaches to agriculture (for instance the use of organic and agroecological practices). It tracks the insertion of ‘organic’ in the development and officialization of grassroots urban agriculture into the Urban Agriculture Programme, which initially included both urban and suburban agriculture, and later the official launch and differentiation of the Suburban Agricultural Programme in which agroecology was introduced as an input substitution tool.

In this context, the second step in the research’s analytical approach, addressed in the next chapter, is the exploration of the actual official insertion of agroecology into the PCC policymaking with the creation of the Suburban Agriculture Programme (SAP) in 2008, the characteristics of this suburban agroecological agriculture embedded in the socialist development strategy and its contribution to food sovereignty, as is now the case (at the time of this research).

Chapter 5
The Cuban Suburban Agriculture Programme: through the lenses of Food Sovereignty-Agroecology and Dialectics (FS-A-D)

This chapter presents the SAP current situation (at the time of the research). It is the research first step of analysis, following the structure of the dialectical analytical framework (FS-A-D). This analysis of the research findings is based on official documents guiding the SAP directly and indirectly, and on research participants' views on the institutional normative and the SAP's actual implementation. Participant views and other primary data is coded accordingly as explained in the methodology chapter 3. The analysis is presented under the Six FS Pillars: 'Working with Nature' (section 5.1); 'Valuing Food Providers' (section 5.2); 'Localising Food Systems' (section 5.3); 'Focusing on Food for People' (section 5.4); 'Putting Control Locally' (section 5.5); and 'Building Knowledge and Skills' (section 5.6).

Treating the Pillars in a sequential manner is only for presentational purposes and does not aim to be a lineal analysis, but better understood as a systemic and complex structure, in which all Pillars are interconnected and contribute to addressing the overall aim of the research. Each Pillar starts with introduction of key areas of the FS theory relating to the Pillar, the relevant official SAP narrative and the research participants' views, closing with a summary.

5.1 FS Pillar First: Working with Nature

This FS Pillar captures, broadly speaking, the world vision that underpins the FS framework. Working with Nature or "seeking to heal the planet so that the planet may heal us" (Nyéléni, 2007:75) conveys the dialectical principle of difference within unity. It encapsulates the vision that nature and humans - in their differences - are interconnected and interdependent to various degrees. From the perspective of a stratified and differentiated ontology (Bhaskar, 2008), it can be said that both are 'ontological subjects', rather than purely subject and object entangled in a 'epistemological relation'. This principle also fundamentally rejects models of production and notions of modernity that exploit humans and nature (Nyéléni, 2007). In other words, it rejects any type of master-slave relationship - e.g. based on race, gender (using Bhaskar's reflection). This power relations perspective is consistent with how agroecology is conceived within FS by LVC, that is, not only about the technicalities of food production and/or distribution but about transforming oppressive social or political power relations which define and impact on food systems. In this context, there are three fundamental aspects on which the construction of social and natural relations in FS are based, namely: a) sustainability, b)

diversity, as biological and cultural diversity above competition and specialization; and c). the defence of small-scale sustainable food production (Nyéléni, 2007; La Via Campesina, 2010).

a) Sustainability linked to the notion of diversity (cultural, social, ecological and political) implies that both sustainability and diversity are conceived as social, economic and environmental, the three being intimately connected (Nyéléni, 2007). The concept of sustainability within the FS framework and agroecology debates is however a contested terrain as per the following points of view: 1. The problem of atomization of the three spheres of sustainability with the decoupling of social and ecological spheres from the economic dimension, as a result of neglecting the dichotomic view of the State and its class analysis (Tilzey, 2018b); 2. The critique of the use of the concept of sustainability - and co-option of agroecology - by proponents of sustained productive models such as Climate Smart Agriculture (Pimbert, 2017); 3. The emphasis on the economic-technological aspect of sustainability and promotion of a combination of technological packages (input substitution) within the discourse of sustainable development and its leaning towards a productivistic or post-Fordist path (Tilzey and Potter, 2014); 4. The concept of multifunctional agriculture as a defining aspect of agricultural sustainability within food sovereignty (Hollander, 2004; McCarthy, 2005; Potter and Tilzey, 2005). In this understanding of multifunctionality, social and natural relations and processes are not geared to a value-exchange or conservationist approach to environment (Cronon, 1996). They can be in line with harmonic social, ecological, cognitive, economic and spiritual metabolism, more akin to notions of mutuality and well-being of humans and Earth. This can be related to traditional systems associated with agroecology (Hernández-Xolocotzi, 1988; Tapia-Ponce, 2002). Or with collective and/or communal systems of managing resources, communities and cities (Cabannes, 2014).

This notion of multifunctionality contrasts with the productivist approach in small- and large-scale agriculture often referred as the diversity of forms (food and fibre) of agricultural production including socio-cultural functions in a given area and livelihoods (Wilson, 2007). This use of the generic term of multifunctionality can be implicit in both large- and small-scale agriculture and developed under any methods and economic model e.g. sustainable with conventional industrial agriculture (Hollander, 2004; McCarthy, 2005; Tilzey and Potter, 2014). This trend has gained traction in studies of urban agriculture, linking it to multipurpose entrepreneurship and individualised poverty coping mechanisms in the global South, and environmental services in the global North (de Zeeuw and Dubbeling, 2009; Renting, et al, 2013).

This argument is further expanded into the idea that agricultural multifunctionality is in fact a

historical construct under particular economic and political circumstances. It emerged in policymaking related to the insertion of agriculture in the Uruguay Round negotiations in 1992 (Wilson, 2007), as "a way to address social and ecological concerns such as farm abandonment and biodiversity loss through domestic agricultural policies that conform to the GATT/World Trade Organization(WTO)" (Hollander, 2004:300) and linked to the European rural context, prior to CAP (Tilzey and Potter, 2014). However, multifunctional agriculture as a policy discourse permeates global issues regarding agriculture in as far as policies on subsidies and tariffs apply to all WTO/GATT signatories but not in the same manner (McCarthy, 2005). Moreover, it is applicable to different geographical contexts (Hollander, 2004). From this applicability in different contexts and as a policy discourse, Hollander (2004) and Tilzey and Potter (2014) argue that multifunctional agriculture can be used within the food sovereignty framework as an instrument to resist neoliberal reforms, to develop a multifunctional agriculture that is intrinsic in social-natural relations, rather than a compensation for the negative externalities of agriculture.

b) Diversity is reflected not only in terms of biodiversity but in relation to actors/cultures (as such biodiversity is based on human diversity, forms of government and areas of concern (agrarian reform, biodiversity and genetic resources, FS and trade, sustainable peasant agriculture, migration and rural workers, gender human rights and youth (La Via Campesina, 2008; Wittman, 2011)). This diversity is reflected in the diversity of praxis and paths towards building FS - with the tensions, contradictions and convergences that this entails (Patel, 2011; Iles and Montenegro, 2013; Schiavoni, 2013; Pimbert, 2018a). These tensions and contradictions are shaped by: 1. Whether FS and agroecology remain part of the process of generation and accumulation of surplus capital within the capital-State nexus (Tilzey, 2018b) (thus maintaining the productivist model and alienation-commodification of nature and humans); 2. The conflict of homogenising strategies towards FS-Agroecology (Patel, 2011); 3. The path to change (reform or transformation) (Holt-Giménez and Shattuck, 2011; Levidow, Pimbert and Vanloqueren, 2014); and 4. The power balance between actors within class-based State-civil society relations (Tilzey, 2018b).

c) The defence of small-scale sustainable production includes a diversity of productive systems e.g. farming, livestock, artisanal fishing, pastoralism, as well as food processing (Nyéléni, 2007). It is important to highlight the inclusion of food processing activities as an integral part of small-scale modes of production. Arguably this can be interpreted as a recoupling of agriculture and industry from a small-scale, sustainable and localised perspective of development. The focus on small-scale sustainable production overturns the dynamic of the debate around the agrarian question in that it rejects large-scale agro-industry

and the transformation of capitalist social-property relations towards defending livelihood sovereignty (Akram-Lodhi, 2015; Tilzey, 2018b). It goes against the Marxian premise of the disappearance of the peasantry (Bernstein, 2006, 2013) or their total transformation into capitalist entrepreneurs or petty commodity producers as rejected by van der Ploeg (2010).

The next section analyses the SAP's vision through the lenses of sustainability, diversity and defence of small-scale food production within Cuban socialist development strategy.

5.1.2 The creation of the SAP under Cuban sustainable development

In August 2009, Raul Castro reinstated before the PCC Congress the urgency of taking advantage in the most intensive way of the land surrounding cities and towns. "We face the imperative of making the land produce more, with tractors or oxen, as was done before the use of tractors, spreading the experience of outstanding producers from the State sector and campesinos." (Raul Castro in MINAG-GNAUS, 2009). In December that year, the SAP was officially established as a pilot experience in suburban areas of 17 municipalities. The policy from the start specified that the programme should use agroecological sustainable practices, be self-sufficient, have a territorial focus and spread across the country (MINAG-GNAUS, 2009). By the time of this research, the SAP was established as a national agricultural programme in 156 municipalities, covering suburban areas in both urban and rural settings. The design, structure and management of the programme is under the general responsibility of the Ministry of Agriculture, with direct management and coordination led by the National Group of Urban and Suburban Agriculture (GNAUS). GNAUS produced the SAP Guidelines - a set of principles, objectives and indicators of achievement, which continues to provide both guiding principles as well as structure for operationalisation (see Figure 5.1.1).

Figure 5.1.1: SAP's guiding principles and objectives

Principles:
1. Maximisation of available land in the most intensive form, with use of its own resources and wide use of animal traction for agriculture and transport. The area to be used is the municipality, to avoid travelling long distances.
2. The production unit is *the finca* with diversified production and use of polycropping based on agroecological sustainable practices.
3. The exploitation* of the *fincas* is organised according to the soil's potential and whether it has water or not, with rich diversification and agroecological practices.
4. Prioritised attention to be given to producers to support their acquisition of agricultural tools, seeds and breeding stock, training on production and repairing of tools and equipment and agricultural extension, according to the programme.
Objectives:
1. Setting up the *fincas* ready for production and defining the productive structure of each, according to its characteristics.

2. Creating the basis for diversified and sustainable exploitation (e.g. production of organic fertilizers, seeds, animal feed, agroecological management of pests, animal traction).
3. Training producers on how to maximise the potential of their *fincas* by using agroecological methods and techniques according to the priorities identified in each municipal project.
4. Meeting all productive commitments regarding volume, variety and continuity of supply.
5. Applying a flexible marketing system with proximity between producers and destination of products within a rigorously controlled process.
* The literal term used in the PCC's narrative is 'explotacion' which in the Cuban context can be interpreted as 'sustained use of resources for the best return on investment'.

Source: (MINAG-GNAUS, 2009)

The programme spans 31 subprogrammes (Table 5.1.1) including: production, distribution, small-scale agroindustry, agricultural services, management of the land distribution and monitoring of the programme (GNAUSF, 2015). Thus, increasing from the 28 subprogrammes in 2007 (see Table 4.2), when suburban agriculture was still under the UAP. By 2017, the aquaculture subprogramme has not been re-instated in the general structure of the SAP. However, looking at the SAP municipal plans found for some of the research sites (MINAG, 2017c, 2017b, 2017e, 2017d), they show information about water reservoirs for aquaculture with a production target, identified in suburban areas under State enterprises management (see Table 3.1 for this).

Table 5.1.1: Suburban agriculture subprogrammes within the overall structure of the USAFP in 2016

Agricultural Subprogrammes	Urban	Suburban	Animal Subprogramme	Urban	Suburban	Subprogrammes of Support	Urban	Suburban
Semi-protected organoponic	x	x	Poultry	x	x	Operations and control	x	x
Vegetables and fresh spices	x	x	Rabbit rising	x	x	Control and use of land	x	x
Medicinal plants and dry spices	x	x	sheep rising	x	x	Soils and Organic fertilizers	x	x
Fruit trees	x	x	Goat rising	x	x	Agroecological pest management	x	x
Flowers and ornamental plants	x	x	Pig rising		x	Animal health	x	x
Plantain	x	x	Cattle rising	x	x	Use and management of water	x	x
Tropical Roots and Tubers	x	x				Animal feed production	x	x
Grains (beans, maize and sorghum	x	x				Commercialisation	x	x
Oleaginous	x	x				Apiculture and Pollination	x	x
Forest, Cocoa and Coffee	x	x				Small agroindustry	x	x
Rice		x				Training	x	x
						Logistics	x	x
						Management of food quality and safety	x	x
						Patios and *Parcelas*	x	x

Source: (MINAG-GNAUSF, 2015)

The SAP, as the country's agro-industrial model, is directed by the overall vision of the Cuban National Development Plan that envisages "prosperous, sovereign, independent, democratic and sustainable development in Cuba" (Partido Comunista de Cuba, 2017a:4). The PCC's Development Plan is in resonance with the sustainable development strategy stated in the most recent Cuban national constitution. This states in Art 13e: "to promote sustainable development that secures individual and collective prosperity, and to obtain greater levels of equity and social justice, as well as to preserve and to multiply the achievements of the Revolution."; and Art 75: "protects the environment and sustainable development of the economy." (República de Cuba, 2019). The vision of sustainability as framed in the country's "sustainable development approach" (Partido Comunista de Cuba, 2017b:Chapter VII Policies on Agroindustry) is a mixed approach to agro-industrial production, spanning low input, input substitution, and agro-industrial conventional methods. In this context, the concept 'sustainable' is nominally applied to the agriculture sector overall, regardless of whether the model of production is conventional, or sustainable with the use of agroecological practices and integrated systems. Furthermore, the notion of sustainability implied in the Constitution, envisions "sustainable development of the economy", the "prosperous development for individuals and the collective" alongside the "protection of the environment". This reflects the sustainable development approach in the Brundtland Report (World Commission on Environment and Development (WCED), 1987) in which social and ecological sustainability are highlighted. Yet within a productivist approach not as a strategy to transition away from conventional production but as way to maintain it with the support of an agricultural sector based on sustainable practices, as can be found in a capitalist setting (Chappell, 2014).

The main concern in this (Fidel Castro's) perspective of sustainability, was to be independent from corporations and the environmental debt of colonialism and imperialism (Castro, 1992). Sustainability was not presented as a rejection of the conventional large agro-industrial model, but as a strategy accommodating a mix of models and technological approaches. The combination of small- and large-scale agriculture was restated by Raul Castro (MINAG-GNAUS, 2009:introduction) when launching SAP "land needs to be put back into production by campesinos and the State enterprises" - the latter being large-scale agriculture. This perspective of sustainability contrasts with the FS strong defence of small-scale sustainable agriculture and rejection of the large-scale, mono-activity and highly industrialised model of production.

In this context, sustainability in SAP was inserted into the narrative of input substitution, recovering land and reducing food imports. This was asserted by Raul Castro when commanding land redistribution in the form of usufruct, linking it to the creation of SAP: "The

country needs to put back in production all the available land in order to reduce: external agricultural inputs, oil consumption and the bill for imported food.“ (Castro, 2009). Following these aims, the SAP’s Guidelines stated that the programme should be self-sufficient based on “diversified and sustainable exploitation” and integrated systems (MINAG-GNAUS, 2009). Self-sufficiency was to be achieved using existing resources (natural and labour), maximising local resources, use of sustainable and agroecological practices, reducing transport costs and local commercialisation of produce (MINAG-GNAUS, 2009). Raul Castro stated “Forget, in this programme, about tractors and petrol, even if we have them in enough quantity, the concept is to implement it fundamentally with oxen as is done in small fincas with excellent results by a growing number of producers.” (Castro, 2009).

This strategy was embedded in the socialist economy in which the State controls ownership and use of land (Partido Comunista de Cuba, 2017a; República de Cuba, 2019), thus preventing land marketing and land financialization. This can be seen as a way to control competition and alienation of resources - as advocated in FS. Having said this, the sustainable development approach pursues “sustained exploitation” in order to fulfil the socialist project (Partido Comunista de Cuba, 2017a). From that perspective, nature and labour are geared towards capital production and accumulation - with the existence of the dual market (State and private) for labour, goods and services, in other words, the creation of agrarian capital.

5.1.2.1 Self-sufficiency through agroecological practices, local resources and diversification

As mentioned in the history of agroecology in Cuba (in chapter 4), the term agroecology entered the country’s policy narrative with the establishment of SAP[41] (MINAG-GNAUS, 2009). As per PCC policy guidelines, agroecology was adopted in policy making as a technological tool which fitted the overall sustainable development approach. As explained in a government official’s pragmatic view, agroecology was one component, among others, to achieve prosperous sustainable development (Interviewee, SG29). This approach is adopted in the SAP where agroecology responded primarily to the need to reduce use of external inputs - or as input substitution - and to increase biodiversity and produce. This is reflected in the SAP guiding principles, presented in Figure 5.1.1 (MINAG-GNAUS, 2009:Introduction). Moreover, in SAP’s farming subprogrammes, the term agroecology is related to, inter alia: agroecological

[41] Previously, in the national constitution and PCC’s policy documents, the terms used in agriculture were conventional agriculture terminology, ecological, sustainable agriculture, or environmentally friendly which become more widely used and has permeated the official discourse since the Special Period (Rosset and Benjamin, 1994; Funes-Aguilar, 2001; Wright, 2005).

management, agroecological pest control and technologies and practices (soil conservation and protection with organic fertilizers and crop residues, polycropping, crop rotation, and drip irrigation systems[42], herbal products for plant and animal nutrition (MINAG-GNAUS, 2009). Each of these aspects having achievement indicators in the programme's evaluation system (GNAUSF, 2015). Apart from this, neither the SAP guidelines nor its evaluation system provided further explanation or definition of agroecology.

Official documents are not explicit on whether SAP allowed mixed approaches. For instance, use of agrochemicals alongside biological inputs was not officially prohibited, except in organoponic production, nor was there an explicit statement on GMOs. However, official presentations by two directors of GNAUS stated that GMOs were not used in the UAP or SAP. Having said this, it can be assumed that, since the programme was launched on the basis of minimum use of resources and to encourage input substitution, use of external inputs was not conceived as a policy direction for SAP.

The adoption of agroecology as a technological component in Cuba's sustainable development strategy resonates with the historical trajectory of the term's definition in the global arena and its earlier focus on agroecosystems and emphasis on technological aspects, as discussed in chapter 2. Moreover, the inclusion of agroecology in a mixed approach to sustainable development resonates to an extent with the debate about the adoption (and/or co-option) of agroecology and FS by governments in some nation-States (with capitalist and socialist strategies) to pursue a neo-developmentalist agenda (Henderson, 2017; Tilzey, 2018b; McKay, 2020).

In the official narrative sustainability was related to agroecology, since both emphasised reducing inputs as well as to diversifying production. According to the use of the terms, sustainable and agroecology in the policy documents, the social aspect of sustainability could be inferred from its association with maintaining food production. The combination of sustainable (low input and agroecological) and conventional agriculture was also paired with the belief that small and large-scale industrialised agriculture can coexist. In the next section, these points are further explored through the views of the research's participants on the concepts of agroecology and FS, and the actual use of agroecological practices by SAP producers.

[42] Such as the 'Franchi Irrigation Method', a patented invention of a small-scale producer in Cuba.

5.1.3 The SAP, sustainable agriculture with an agroecological basis: a view from the people

The understanding by many of the research participants not directly involved in agricultural production was that sustainable agriculture is organic agriculture with no use of agrochemicals and mainly happening in urban areas. An elaborated version of this idea was presented by researchers who had been actively involved in the development of organic agriculture and had participated in the first agroecological trainings in the country (Interviewees, SG22, SG20). They related the rise of agroecology in Cuba mainly to the organic movement, explaining in detail the technological aspects involved on agroecological agriculture's impact on the environment, pest control, and production of diversified and healthy food. Some mentioned the benefits of agroecology for producers' economic viability, mainly by reducing input costs and/or by diversifying their range of produce. Government officials interviewed linked sustainable agriculture to diversifying produce and using agroecological practices, which was beneficial for both producers and consumers (Interviewees SG29, SG25).

The link between organic and agroecology in participants' perceptions reflects to an extent the undifferentiated use of both terms when referring to agroecological, sustainable or ecological production (Badgley *et al*., 2007). Perceptions of sustainability were associated primarily with ecological and economic concerns, as explored in the following section. The social dimension of sustainability, specifically regarding producers' ability to affect decisions related to their livelihoods, as perceived in FS, was not necessarily linked to agroecology. The agency of producers in decision making and whether this dimension was connected to agroecology or sustainability is explored in detailed in the FS Pillar 'Putting Control Locally' in section 5.5 below.

5.1.3.1 The SAP and agroecology

There were differing understandings of the SAP and agroecology. An overview of participant responses shows that their knowledge of the SAP varied from not knowing about it at all or knowing only that it was a programme of '*La agricultura*' (the colloquial term for the Ministry of Agriculture), to understanding in more detail the programme's design and implementation. Regarding the relationship between SAP and sustainable agriculture and/or agroecology, responses similarly varied from not knowing anything at all, to having an informed opinion of it. Depth of knowledge about SAP as an agricultural programme and its vision of sustainable agriculture depended on: 1. the processes and relations within the food system in which the participants were primarily engaged 2. Their position within the State-civil society structure

e.g. as government official, institutional researcher, independent researcher-producer, NGO worker, independent producer (family or individual), or worker; 3. levels of interaction with and knowledge of national institutions, for instance being a member of ANAP or having relation to universities, research centres or NGOs; 4. the type of producer in terms of social-property relations e.g. their access to natural, social and financial resources, and forms of organising production e.g. individual, collective or State enterprise.

Knowledge of SAP and its link to sustainable development and/or agroecology was greatest among participants who were involved directly in food production: producers/researchers, researchers, government officials, producers linked with research or education institutions, to ANAP or NGOs (e.g. receiving trainings or practical support with productive activities or having to deal with regulations for receiving land). Those with less or no knowledge about SAP or agroecology were involved in processing, distribution or consumption, or independent land workers and producers with minimal connection with cooperatives or training activities. 69% of the participants did not know the meaning of agroecology nor SAP. An expansion of the views about agroecology and FS from those not involved in any aspect of agricultural food production, is presented below, under the FS Pillars 'Localising Food Systems' and 'Focusing on Food for People'.

5.1.3.2 Producers' use of agroecological practices

This section focuses on producers' actual use of agroecological practices alongside other traditional and alternative practices not included in agroecology based on their responses to the research's agroecological practices questionnaire. This was used with (67) producers from almost all forms of productive organisation located in the suburban areas of the research's geographic sites. Table 5.1.2 comprises producers' responses.

Table 5.1.2 Agroecological practices used by producers in the three research sites

	Agroecological Practices	No of Producers		
		Cienfuegos City	SJDL	Havana City
A	***Biodiversity management***			
	Setting of agroforestry systems			
	Live fences	18	25	13
	Forests and fruit trees	10	21	12
	Proteic banks	6	1	9
	Trees disperse in grass fields	7	0	6
	Barries to control water in rivers	5	0	2
	Mixed trees with crops	10	10	9
	Mixed trees with grass/forages	9	3	9
	Trees in non-arable soil	1	0	0

	Polycroping and tempo-spatial diversification			
	Annual crops intercropping	10	9	8
	Perennial crops intercropping	7	15	11
	Intercropping trees of different species	9	8	6
	Intercroping of crops with forrages	3	4	8
	Intercroping of graminas with leguminosas	6	1	4
	Intercroping of crops, forrages and flowers	1	1	1
	Biological control of pests and disease			
	Use of biological controls and biopesticides	18	10	14
	Use of colour traps	16	18	8
	Use of repellent and/o medicinal plants	17	23	11
	Management of Arvenses	3	5	4
B	***Soil Protection and Management***			
	Crops rotation			
	Rotation of annual crops	7	9	3
	Rotation of perennial crops	6	18	7
	Rotation of annual crops with perennials	5	2	5
	Rotation of crops and cattle fields	3	3	1
	Rotation of idle land or covered with invasive species	2	0	1
	Production of organic compost			
	Production and treatment of manure	13	9	10
	Compost production	15	18	4
	Vermicompost	4	2	7
	Microorganism production	5	3	0
	Biofertilizer production	4	0	1
	Protection and conservation of soil			
	Soil covering with mulch	14	24	11
	Covering the soil with crops residuals	13	21	10
	Use of leguminosa to cover soil	9	0	6
	Rehabilitation and or renovation of grass	7	0	4
	Use of live or death barries against erosion	9	6	6
	Terraces agains soil erosion	6	0	3
C	***Seeds conservation and management***			
	Seeds Conservation and sharing	1	2	2
	Seed banks	0	1	2
	Seeds selection	0	1	1
D	***Other agroecological practices***			
	Minimun tillage	13	26	10
	Animal traction	15	4	8
	Use of crop residuals and by-products for animal feed	14	4	3
	Use of alternative sources of energy	4	0	2
	Biogas	4	0	2
E	**Other traditional and alternative practices**			
	Polination - Mellipona bee	9	7	7
	Moon calendar	23	24	12
	Pyramidal energy	1	0	1
	Homeopathy	0	0	2

Source: Author

The type of practices most used by producers in each case study are explored in Figure 5.1.2.

Figure 5.1.2: Agroecological practice on the ground

Biodiversity management included biological control of pests and disease, polycroping, intercropping and agroforestry**.** Almost all producers knew about biological pest controls, regardless of whether they used them or not. Out of 67 producers 30 expressed that they used them depending on their availability**.** The '*bichitos'* or small animals, as producers called the biological controls, were provided as part of the State contract. A producer explained*: "*We don't produce the bichitos - they are provided by the CREE through the USAFP and *Sanidad Vegetal* trains us on how to use it*."* (group of 4 Interviewees, PC19-22). Another producer also added that there are times when they are not available. Producers within cooperatives used them more regularly as they had the cooperative's support to access them. Biological controls were not popular among the *parceleros* , although they knew or had heard about it, they did not use them because as independent producers it was more difficult to access them. The *finca* owners, the State *fincas* and one of the UBPCs used biological controls but some also used agrochemicals if necessary. The use of pest controls such as colour traps, intercropping with medicinal plants and some flowers was common amongst producers. It was explained as something that was traditionally used *by campesino/as* and was effective for pest control and for the soil. Wright (2005) recalls similarly that these practices have been recovered and shared from traditional farming since the special period. Most of the producers in organoponics commented that having trees around the organoponic or intensive garden was used as a barrier for pests.

Intercropping, polycropping and agroforestry were assessed by almost all producers as very useful, although their use depended on the amount of land and the main production priority. A mixed crops cooperative practiced intercropping with crops that were not their main production priority. The intercropping could be with perennials, trees or annual crops, and this was practiced by half the producers interviewed. A few producers had intercropping with flowers, which was their main priority. Those whose main priority was livestock also had intercropping of protein plants and fruit trees. A producer explained: "My main activity is cattle and sugar cane, but I also have fruit trees in the fields and my fences are with *pinon Colorado* (Colorado Pynion)." (Interviewee, PC23). Another producer whose *finca* was smaller explained "I don't have a lot of land, but I have trees and protein plants for my animals, otherwise I could not have animals, I need to ensure their food." (Interviewee, PC20).

Agroforestry was practiced by about half of the total 67 producers. A producer and food processor explained: "producers are learning to maximise the use of trees. We are in a province which has focussed on citric and fruit trees, mainly mango, so it has been an advantage. Trees are used as fences, mixed with other perennial crops which increase diversity in the finca and give extra production to the producer." (Interviewee, PC6). All the producers who owned land had 'living' fences, and more than half of them had fruit and forage trees on their land. Trees were not their main production but were still considered very important. They saw the integration of trees as increasing the diversity of production. "I have trees mixed with my coffee plants and as a division between one part of the finca and the other where I have my perennial crops." (Interviewee, PS6). Some producers commented that polycropping and intercropping were possible with land in usufruct, but it was not good to have many trees as they did not know if they will be moved from the land as it was with definitive lease.

Soil protection and management were key priorities for all producers, but even more for those who had received land in usufruct with eroded soil and/or covered with Marabu (Dichrostachys cinerea). The clearing of the land was done almost totally manually. Most producers explained that it could take about two years to clear and have the soil ready for cultivation. Almost all producers used practices such as adding compost, covering with mulch, crop residues and by-products and minimum tillage. One producer explained that crop residuals and by-products are used for different purposes, "We have learnt to use everything that we have. Nothing can be wasted, if it is not good for us is good for the animals as well as for soil protection. " (Interviewee PC6). Only two of the producers mentioned crop rotation as soil protection. Producers explained that due to the size of the land, they do not practice rotational cropping but grow two or more main crops during the year. Two producers, whose main activity is cattle raising, have divided their field into three pastures to rotate the animals: "our main activity is the animals [cattle] so we cultivate protein plants and move the animals from one field to the other. We used to have two crops of maize and beans but decided to move with the animals. There is too much uncertainty with these climate changes. " (In reviewees PC21, PC19). The use of manure was more restricted for those producers who did not have animals, but it was maximised by those who had animals e.g. goats as their main priority. Some of the *parceleros* who had their land close to a cattle *finca* sometimes could obtain it from this *finca* , but this was still difficult. A cooperative member explained that they used manure but only if there was no NPK fertilizer. A producer with the smallest plot of land among all the producers interviewed produces his own brand of liquid and solid vermicompost to sell to the whole urban and suburban programme (Interviewee, PL1). The liquid can be used both for soil fertility and plant health. The use of stone walls and terracing was used in *fincas* where soil was covered in stones.

Seed conservation and sharing was less used among all respondents. When asked about this most of the producers explained that the seed for those who have a planned quota was provided by the State at the start of the contract. This included the seeds for the organoponics. Seven producers were keen to save their seeds but did not always practice it. The practice of saving the seeds was more common among the *finca* owners, who stated that it was important to retain the seeds as they can produce what they want. A producer who had flowers as his main priority, explained that seeds were as important as having land, and he had a bank of seeds for production of flowers as it was a crop that was very productive. Another respondent who produced tree seedlings for the programme also stressed that producers should have their own seeds, as "this gives independence to produce what you want." (Interviewee, PC7) This importance was to an extent less stressed by many participants when stating that it was provided by the State.

Traditional practices not included in agroecology, such as the moon calendar for cultivation (59 producers use it) was used or known by all producers. Some producers said that although climate change has 'messed it up' they still used it. Most producers articulated that this practice and the use of animal traction were traditional practices among Cuban *campesino/as.* Out of the 67 producers 12 had oxen and six had horses and carts for transportation. Producers were also integrating other traditional practices such as the propagation of 'bees of the earth' (Melipona bee). They were good for pollination, not necessarily for honey production. One of the *parceleros* recollected "I had some bees, but the fumigation killed them off. It would be good to have them again." (Interviewee, PS22). 18 of the producers have the Melipona bee in their land, and one of them is the point of reference of the pollination sub-programme of the SAP in the province.
Integration of new methods and practices, depending on their farming system, was actively practiced and producers expressed their interest in experimenting. One example of the desire to create and experiment was evident with two of the producers who were using homeopathy, pyramidal energy and one of the producers who had built a homemade egg incubator to have different species of poultry. Although there were only two producers experimenting with these practices, overall, most producers commented that they like to experiment and create new things. They became interested in the first place after receiving permaculture trainings. The producer using homeopathy in plants mentioned that it makes the plant grow better. She was keen to experiment it on animals (Interviewee LP2).

Source: Author

The use of agroecological practices was mainly determined by the type of land, the State priorities and what type of resources were available. All the producers (34) most knowledgeable about the term agroecology and using practices consistently were either members of ANAP and/or of a cooperative, researchers/producers, those who had a strong connection with research institutions, and national organisations and producers practicing Integrated System of Agroecological Livestock and Agriculture (*Sistema Integrado de Ganaderia y Agricultura Agroecologica* acronym SIGA in Spanish).

The legacy of organic agricultural development in the country, particularly its emphasis on urban agriculture, e.g. organoponics, was also evident in the responses of most producers (58). Most of them associated agroecology with using organic agriculture or methods, producing without chemicals and/or leading to healthier food. This was stated by those who had not heard the term before but figured it out by association (when explained by the researcher) and those who had received trainings from universities and NGOs. The idea of agroecology as agriculture without using chemicals was expressed by organoponic producers. One mentioned: "agroecology is the type of agriculture that we practice in the organoponic, we cannot use chemicals, this is evaluated by the people from the *Sanidad Vegetal* (National Institute for Plant Health)." (Interviewee, PS8). The administrator of another organoponic stated that he had to use agroecological methods as the USAF programme requests it. "They come to visit and evaluate us each quarter, they check everything. We have been evaluated really well so far" (Interviewee, PC18). Other producers, *parceleros*, commented that agroecology was the same as permaculture: "Sometimes, we have permaculture trainings with 'Fundación Jimenez'. They have taught us about all those questions that you are asking us. I think that agroecology and permaculture are the same. Depending on the *parcela* you can use some of those practices." (Interviewee, PS2). "Not everybody cultivates the same, or has the

same soils, thus each producer needs to work with different practices and diversify accordingly, this brings diversity to the production but also to the market." (Interviewee, PS6). "You have to think what is needed on your land, not all practices are necessary, for example I don't need to have hydro-regulated strips, but I have forage trees in all my fences and use that for my cattle." (Interviewee, PC19).

Some producers explained that what is called agroecological practices were *campesino/as'* traditional practices in Cuba[43]. When discussing the meaning of terms used in the description of agroecological practices in the questionnaire, eventually producers unfamiliar with the term agroecology, commented that those were things that *campesino/as* used to do in order to cultivate. They did not know that it was called agroecology[44]. This was encapsulated by a producer when he stated: "more or less all of what you are describing is what a traditional *finca* used to be for a *campesino/a*, everything was included." (Interviewee, PS20). Producers who owned their land stated that those practices called agroecology "were working with the mercy of nature" (Interviewee, PS6), "working according to the land" (Interviewee, PS9), or "working in the traditional way as my parents did it" (Interviewee, PS2). Another said that agroecology was like the traditional *fincas* "integrating animals, crops and all that is going on in the home and the community" (Interviewee, PC23). Others explained that although they did not use most of the practices, because of the type of land they had (*parcelas and patios*), they knew something about it because that was how agriculture used to be.

5.1.3.3 Agroecology and use of agrochemicals

In the SAP the use of agrochemicals was not forbidden, as in urban agriculture, but compared to monocultured crops, there was less usage in suburban agriculture. "In suburban agriculture you can use some agrochemicals, but it is not comparable with the cultivation of potato, cabbage and garlic in conventional agriculture. There you fumigate a lot as it is production on a large-scale." (Interviewee, PL9). This comment was confirmed by another producer, who mentioned that he used to live near an area where potatoes were cultivated and left because of the fumigations (Interviewee, PS3). "Some years ago, I used to fumigate directly to kill the weeds but now I've stopped that. I rely only on plants and fortunately that controls the pests." (Interviewee, PS4). Although in general there was concern about use of agrochemicals, it was tempered with pragmatism. This reflected the comments of several producers about not being absolutist but making decisions according to needs and the reality at hand. The type of

[43] This resonates with previous research carried out in the country (see Rosset and Benjamin, 1994; Wright, 2005).
[44] The questionnaire was based on questions and terminology used by Cuban authors and authorised to be used by the Cuban university hosting this research.

agrochemicals they used was a topic that did not come up easily during interviews. The only fertiliser type that some producers noted was NPK, Brand names were not spoken about.

Agrochemicals were not used consistently as in conventional agriculture but only for resolving problems and to save their crops. This was encapsulated by a producer as: “You cannot be absolutists if you are going to lose your crop. You must know how to do your crazy things (*tus locuras*), in that way you have less damage while controlling your pest.” (Interviewee, PC16). Another said, “Not every year is the same, so you cannot be absolutist”. “There are so many pests that you need to do something about it”. “The problem is that you only rely on your crop, and if it is a matter of losing it you must take hard decisions”. (Interviewee, PC5). Another key aspect of use of agrochemicals related to availability of biological controls. A cooperative administrator explained: *“*You have to use whatever you have in a given moment. You apply biological products but if it is necessary you fumigate. You buy the bioproducts from the CREE as part of the production contract (which can be from 1 to 3 years), but there is not always a stock of them. In the case of fertilizer, if there is no NPK, we use manure, but it is more work when you have large areas and if you don’t have a spraying pump you have to use more workers, increasing production costs. The problem of using ‘el *producto*’ [agrochemical] is that you don’t have the certainty of having them all the time. Another problem is that always using the same product means that eventually it does not work on the pest.” (Interviewee, PS8). *Parceleros* similarly commented that even if they wanted to use “*el producto*”, it was not easy to obtain them as independent producers. “Sometimes you can get a bit of it from a friend.” (Interviewee, PS26)

Among all producers those in organoponics were the most adamant on the use of agroecological practices since agrochemicals were banned in those production units. An organoponico administrator explained: *“*we use colour traps, flowers and medicinal plants, biopreparations and (those *bichitos*). However, if we cannot control the pests, we call the people from the Plant Health Institute and if it is necessary to use an agrochemical, they explain how to do it.” (Interviewee, PS8).

The most common motivations for using agroecological practices were that they gave good results and that even if they wanted to use chemicals, it was difficult to buy them. The only way to get them was through the *Granja Urbana*, the cooperative, or sometimes the Agriculturalist Advice-Shop *(CTA)* but it was not always available. On the other hand, use of agrochemicals was related to issues such as the danger of losing their crops, being able to obtain them, health risks, and in the long run having more resistant pests, availability of labour, having the appropriate knowledge and being able to use the appropriate product for the *finca*,

as a researcher/producer explained (see Figure 5.1.3).

Figure 5.1.3: A researcher/producer's view on agroecology and the use of agrochemicals

I was telling you that an agroecological *finca* must be productive. That means that you have a positive production, there is no agroecology if there is no good production in the long term. Let's start with that. If there is an increase of a pest you must control it, but you must do it in a way that is less harmful to the environment. But the point is that you must control the pest. The first thing to do, is to review what you have at hand. You could use biological products that increase the presence of beneficial insects and/or microorganisms that can decrease the pest. Or you could use a plant pesticide that affects the environment as little as possible or even an agrochemical if it is necessary. But you must see which chemical will not affect the bioregulators that you have in the *finca.* To do this, you must have the knowledge to decide which chemical you can use. The agriculturalist should know the bioregulators that are helping and that do not need control. Or perhaps you can use an agrotechnical practice, thus you practice a mechanical or a physical pest control. But when we are talking about an agroecological *finca* , you are saying that the producer must be trained, they need to have knowledge. The producer must not have pressures of any sort, pressures like for instance, to be obliged to use a product that is inadequate for the finca. (Interviewee, GS39).

Overall, while some producers had embraced agroecological practices exclusively and confirm resulting improved soils and production, others have taken a more mixed approach combining agroecological and other traditional practices with occasional use of chemical inputs (e.g. for soil enrichment and to control pests), while recognising the associated risks in the long run, costs and availability. This situation reflects the mixed approach implicit in Cuba's agricultural model, the use of both agrochemicals and, for instance, biological controls provided by CREES, except for production in organoponics. As regards the vision of sustainable agriculture, use of agrochemicals was seen as another tool, when used correctly, to maintain the crops, but on the other hand it was not the best option as there was not always availability or easy access. Hence the use or not of agrochemicals revealed issues related to ecological and economic sustainability but also broader concerns about motivation and support to adopt a sustainable approach fully and coherently.

5.1.3.4 Diversity and integration good in theory, a challenge in practice

The use of agroecological practices to 'create the basis for diversified and sustainable exploitation', as stated in some of the SAP's objectives, was a challenge for many participants, as demonstrated by producers' comments about the actual implementation of agroecological practices. One of the commonest concerns was lack of availability of resources. For instance, biological controls were limited and prioritised to producers with State production quotas, and although widely known by producers in Cuba[45], and despite government support for the CREES they were not easily available. This reflects the fact that the CREE numbers have

[45] As explained in chapter 4 these were developed in the 1980s originally for commercial sugar production and still is used in *Polos Productivos*.

reduced from 280 in 1991 to 208 in 2016 (Vazquez and Perez, 2016). Diversification of production by different means, for instance integrating agroforestry, was appreciated by all producers, although this depended on State agreement on production quotas and the type of land. Regarding, aquaculture targets in some of the SAP municipal plans accessed by this research (see Table 3.1) none of the research participants (independent or in cooperatives) practiced this activity, only one producer commented that he would like to produce fish in a pond nearby, but he needed some capital. This activity is mainly managed by State enterprises and opened to foreign investment (Ministerio del Comercio Exterior y la Inversion Extranjera, 2015).

A key aspect of diversity, as argued in FS and agroecology, is seed control. Contrastingly, among producers interviewed, the practice of storing or sharing seeds was minimal. Comments on this mainly referred to the fact that the State provides the seeds, with no mention of loss of diversity or resistance to pest or climate changes for instance. This showed an unexpressed limitation, apart from availability of resources, related to social relations of production, such as effective control of resources and transmission of traditional knowledge[46].

Integration of multiple dimensions such as farming, livestock, energy production, small-scale food processing industries and activities such as agroecological tourism by producers practicing SIGA was the most coherent empirical experience of the multipurpose ambition of integrated *fincas*. This reflects comments during a training and exchange session organised by INIFAT and ACPA between producers, researchers, and technicians from different provinces. A producer summarised the debate as follows: “integrating different practices, in *fincas* that have livestock, crops, trees and even crops of vegetables in organoponics, has been taken to a higher level with SIGA. Integration of animals, trees, crops and agroecological practices is not an isolated practice but interconnected. All produce is used in one way or another.” (Active Participation Notes in training session April 2017). Another producer highlighted the topic of producing energy with biogas as a fundamental aspect of an integrated *finca*. “Every producer has to have a biogas system; it is the first thing that a producer should have. With the biogas I don’t have to spend a cent on energy.” (Interviewee, PC6)[47].

It is worth stating that although SIGA was presented as part of SAP, one of the producers argued that while some producers practicing SIGA were found in the suburban area, this was

[46] Participatory plant breeding emerged in the Special Period under PIAL (Rios-Labrada, 2016). This practice however was not known by most of the producers interviewed.
[47] Energy production as part of an integrated and diversified agroecological system has been presented by some authors as sovereign energy (Funes-Monzote, 2017).

more common among rural family producers. It was integrated into the SAP later as a pragmatic way of connecting positive initiatives happening in rural areas with the suburban programme (Interview, SG39). This topic reflects how, in practical terms, the fluidity between rural, suburban and urban was recognised by producers, not only in terms of movement of produce but also of knowledge production.

5.1.3.5 Small- versus large-scale agriculture on a sustainable and agroecological basis

Defence of small-scale agriculture was not necessarily a direct rejection of large-scale, agriculture as in the case of the FS argument, but arguing for a pragmatic combination of the two, as reflected in the comments of some producers/researchers and government officials. For instance, four producers/researchers who had extensive knowledge and made consistent use of agroecological technologies and practices were adamant that agroecology was not only for small-scale farming, but rather a strategy that crosscut all areas and scales in the food system. It was not only suited to the development of individual *fincas*, but that should be used as a territorial strategy (Interviewees, SG37, SG38, SG39, SG40). Two government officials commented that while it was important to promote agroecology, they could not be fundamentalists and discard all other farming systems in the country. They agreed that urban and suburban agriculture was the level where agroecology could be applied successfully (because of the scale), however, they were less convinced about applying it on a larger scale, the main challenges being lack of labour and the level of agro-inputs and machinery needed. However, another official commented that “agroecology on a large-scale is necessary and there is a need to transit towards that.” (Interviewee, SG30).

In this context, the scaling up of agroecology was discussed mainly in terms of productive methods and technologies, to increase productivity through diversity and integration of systems. An agroecological producer/researcher stated: “There is no doubt that agroecology can be scaled up, it is a matter of what you mean by scaling up. Increasing diversity in production and land tenure can be key to scaling up, but it is also a matter of time, space and values. Time, because processes in agroecology can be more time consuming than using conventional techniques, but this is compensated for by greater variety in production and producers. In terms of space, learning is applied to different practices and technologies depending on the soil and terrain that you have.” (Interviewee, SG38).

The idea of integrated systems, where agriculture, livestock and forestry were mixed according to the main purpose of the production unit, was described by a producer-researcher as a key

strategy for scaling up. Figure 5.1.4 describes his experiences of agroecology at different scales.

Figure 5.1.4: Agroecology on small and large scales: the views of a producer

"There are many agroecological practices that can be applied in medium and large-scale *fincas* , primarily the combination of trees with the main purpose of the *finca* . For example, on a medium or small-scale you can make a good agroforestry design. This does not mean that you only have trees, it means that you integrate cattle or crops with a short production cycle, so that you can maximize what the trees offer you. In *fincas* using monoculture you can start introducing polycropping, to achieve a productive agroecological strategy. The point is to do it gradually, you cannot say that there is going to be a sudden change over a year. It is important first to increase biodiversity. This means that it is cost-effective, with an increased level of diversity in production. An agroecological *finca* lends itself to having a great diversity of species, which at the same time increases resilience and helps reduce the adverse effects of external events. If one of your species is attacked others survive. I believe that historically there has been the misperception of thinking that agroecology is only for small *fincas* . That can be used in a large *finca* too but there is more to it than that. The agroecological *finca* can be more productive than one under conventional agriculture. With the latter perhaps in the first four to five years you have greater yields, but the sustainability of the soil is affected, and in any productive *finca* the most important thing is to maintain soil fertility. That is not possible with conventional agriculture, as there comes a time when fertility and texture for crops to root is not there. In addition, an agroecological *finca* is more effective as far as producing energy is concerned. An integrated agroecological *finca* produces both food and energy in an efficient manner." (Interviewee, SG38).

5.1.3.6 The relation between agroecology and food sovereignty within SAP

Overall, the connection between agroecology and FS within the development of SAP was not explicit in participants' responses. The relationship between them was only pointed out by a few participants who had extensive knowledge of agroecology and their comments were related to the overall agriculture sector in the country. This is reflected in the responses received in individual interviews and during the research's National Workshop on Food Sovereignty (NWFS), which have been organised into the following four categories (a list of responses from participants is presented in Appendix 5.1):

1. **People with no knowledge of the concept of FS and unwilling to give an opinion** on it (18% of participants). These were primarily involved in the food system only as consumers/non-producers and sometimes as producers.

2. **People with no knowledge of FS but willing to offer an opinion** by breaking it down into food and sovereignty (62% of respondents). There was awareness of food sovereignty, for instance as having freedom to eat and produce the food that each wants or decides, the relation between food and prices, who regulates that, and its connection to the right to access food. These comments presented a view of food-related issues beyond the technicalities of production and more about the socio-economic issues such as price volatility.

3. **People willing to express what they believed or knew** about the concept of FS (20% of participants), were producers, producers/researchers, researchers, technicians or decision-makers. Those who knew the concept as articulated by the LVC were researchers, students or professors in education and research institutions who had been involved in organic and agroecology development in the country.

4. **Collectively discussed perception of FS**. This included responses gathered during the NWFS, covering a wider range of issues addressed by participants. FS was associated with freedom to decide what to eat or produce. However, above all was related to problems with prices of both inputs and food and the opening-expansion of the private market, as shown in the word cloud generated with the comments gathered in the NWFS (see Figure 5.1.5). The conceptualising of FS in the workshop was broad and included social, economic, and political issues, as evidenced in quotes from the research participants. A list of comments collected during the NWFS is presented in Appendix 5.1.

Figure 5.1.5: Tag cloud generated with comments about the meaning of food sovereignty

A detailed exploration of the issues raised in the NWFS is addressed in the next FS Pillars, where participants' views are related to each FS Pillar, contributing to understand the contextualisation of FS within in the SAP and broadly speaking in socialist Cuba.

5.1.4 Summary

This section has presented the official structure of the SAP, as a State-led programme to produce food and reduce imports during the 2008 crisis. From this, it was understood that the vision guiding the SAP is that of Cuba's ecological and sustainable development underpinning the socialist Socio-economic Model (Partido Comunista de Cuba, 2017a; República de Cuba, 2019). In this vision of sustainability both conventional and ecologically friendly agriculture coexist. Sustainability is attained through the combination of agricultural programmes undertaken under large-scale and industrialised agriculture and programmes with low inputs and ecologically friendly practices. Within the latter, the SAP was set up as a multipurpose programme to be developed on a self-sufficient basis and with a high degree of diversification, using agroecological practices (Partido Comunista de Cuba, 2017a). Although protection of the environment is enshrined in the constitution and in the country's policy guidelines, this is alongside the premise of developing or 'exploiting' (*explotar*) the land to maximise resources. Furthermore, the sustainable development vision underpinning the SAP shows that both small-scale producers and State enterprises are set alongside to put the land into production, with the premise that small-scale food producers must be self-sufficient. The implications of this vision for the development and implementation of the SAP and its contribution to FS are key aspects addressed throughout the rest of this thesis.

Another aspect discussed in this section was the official adoption and the participants' understanding of agroecology. Its official adoption was as a tool to reduce external inputs and to expand diversity in production, reflected in the SAP Guidelines presented in Figure 5.1.1, and in the PCC Policy Guidelines (Partido Comunista de Cuba, 2017a). In this respect agroecology was adopted as an input substitution tool rather than a systemic approach. The description of the use of the agroecological practices presented in Figure 5.1.2, shows the range of practices used by producers. The term agroecology was not familiar to all producers or non-producers, in many cases it was used interchangeably with organic, agriculture without chemicals, or the way agriculture had traditionally been practiced. Those with knowledge about agroecology were researchers and producers who had been involved in the development of organic and ecologically friendly agriculture in the country or who had received trainings. For some agroecology was a pragmatic way to resolve the problem of not having access to other resources.

Perceptions about scale and the use of agrochemicals in agroecology as practiced in the SAP were related to issues of time, type of resources available and assessing what was best for the context. As a producer and a government official commented "we cannot be

fundamentalists". This perception resonated with the flexible and pragmatic approach to sustainability in the official narrative. Moreover, it showed the contradiction between the expectation of the SAP to be self-sufficient while also effectively increasing production. For instance, producers' comments about their difficulty in accessing biological controls which could only be procured through the CREES. The final aspect presented was an overview of participants' comments on their understanding of the meaning of FS, which is addressed throughout the following FS Pillars. At this stage a key point to highlight regarding the understanding of agroecology is that there was no obvious link between it and FS, only a few researchers made the connection.

The implications of the adoption of agroecology as a technological aspect within the sustainable development strategy in the official narrative of the SAP, is critical to understanding how agroecology was institutionalised in Cuba and how knowledge is produced and transmitted within the SAP. These aspects are discussed in the next section in the FS Pillar 'Valuing Food Providers' and in the last FS Pillar 'Building Knowledge and Skills'. The following section continues presenting the analysis of the SAP through the lens of the FS Pillar 'Valuing Food Providers', which explores the SAP's food providers and the social-property relations in which they are embedded.

5.2 FS Pillar Second: Valuing Food Providers

This Pillar identifies the FS food providers and discusses how they are valued and supported to develop the FS vision. It follows from the understanding (established above), that the SAP is embedded in the mixed approach to sustainable development and accommodates coexistence of *campesino/as* and State enterprises, in small, medium, and large-scale production. This section focuses on characterising the food providers in the SAP, set up by the PCC as a self-sufficient, agroecologically based, programme. However, producers explained that using agroecological practices did not exclude their need for support such as reliability of inputs. This section therefore also explores the institutional infrastructure to support their existence and livelihoods. By understanding those engaged in the SAP and conditions in which they develop their livelihoods, the exploration of suburban agroecology becomes more focused, highlighting how producers relate to the land in the human-to-nature relationship, the first plane of the 'social being' concept used in the FS-A-D analytical framework.

5.2.1 Who are the food providers in the Food Sovereignty framework

In the conceptualisation of agroecology food providers are presented as 'small-scale farmers' (discussed in chapter 2). Within the FS framework, this view is expanded into a differentiated multi-actor category of food providers. This category, as presented by LVC in 2007, includes women and men, peasants and small-scale family farmers, pastoralists, artisanal fisherfolk, forest dwellers, indigenous peoples, agricultural and fisheries workers, including migrants, who grow, harvest and process food. All these, and their modes of production, are included in the FS's description of disadvantaged, poor and disenfranchised classes (Nyéléni, 2007). FS's strong roots in the peasantry led to some naming it the 'peasant way' (Masioli and Nicholson, 2011) and criticism of this characterisation for limiting FS to farming and/or excluding other groups and production modes (see Bernstein, 2013). In response, LVC and some scholars argue that the framework should not be tied to a particular social group (McMichael, 2006; Nyéléni, 2007; La-Via-Campesina, 2008), rather it is an expression charged with political intent (Wittman, Desmarais and Wiebe, 2011; McMichael, 2014) based on social and political diversity. Thus, FS encompasses actors within the same class immersed in food and agriculture, but essentially enmeshed in political, economic and social struggles across time and space. In this context, patriarchal and gendered imbalanced relations are directly addressed, as stated in the chapter on women in LVC's political manifesto (La Via Campesina, 2008). This illustrates that the food provider category is diverse and historically in constant change.

The FS argument about valuing food providers is first a matter of recognition of their existence. Assessing this from the labour aspect of the agrarian question (Bernstein, 2006; Akram-Lodhi and Kay, 2010), the fundamental aspect of a peasant's existence is the unalienated relation to the land, not as a labourer, waged worker or capital producer/accumulator but as a matter of self-survival (van der Ploeg, 2018) and identity. In this sense, FS is not about jobs/employment, nor becoming agroindustry workers, but to have control over one's own existence and livelihood, through access to natural resources and autonomy to decide how to use them. This was asserted in the demand for agrarian reform in the first FS set of principles (Windfuhr and Jonsén, 2005) and later re-asserted by LVC as popular agrarian reform[48] (La Via Campesina, 2016). As such it entails social-property relations that ultimately refer to how wealth is created, appropriated, and used, and power relations between different groups and

[48] One of the LVC challenges in the declaration of Maraba: "We will transform the struggle for land into the struggle for territory, along with developing a new productive model for food sovereignty, based on a more "autonomous" agroecology by using our own local resources and inputs and recovering our ancestral knowledge." (La Via Campesina, 2016).

classes (Borras and Franco, 2011). Here the peasant focus and relationship with the land does not exclude other FS food providers. FS's rejection of non-alienated labour is extrapolated to the struggle against dispossession of means of production and exploitation of wage workers, landless workers and informal economy food providers in rural-suburban and urban situations through processes of semi-proletarianization (Tilzey, 2018b).

Regarding capital-labour relations, food providers are characterised by dichotomous views of individual property rights e.g. ownership/non-ownership of means of production and degree of dependency on capitalist systems (e.g. insertion in the labour/produce markets), therefore becoming petty commodity producers engaged in specialised production, as both capitalists and workers (Bernstein, 2006, 2013), or characterised as farmers, entrepreneurs or peasants depending on their level of capital accumulation through labour hire and market insertion (van der Ploeg, 2014). However, these characterisations lose some analytical validity in scenarios where individual property rights and full market insertion are not applicable and where protecting the autonomy of individual livelihoods is less important than protecting national sovereignty. From another angle, Tilzey argues that FS is a matter of livelihood sovereignty (2018b). Leaving this theoretical analysis, this section now turns to analysis of the SAP food providers in the context of Cuban socialism.

5.2.2 The SAP and the Cuban State-led land redistribution: bringing labour back to agriculture

From the FS perspective, small-scale sustainable food providers are characterised as key social, economic and political actors (Nyéléni, 2007; La Via Campesina, 2008). These aspects have also been central in the construction of Cuba's post-Revolution Marxist-Leninist socialism, but with different trajectories to that expected in FS. As explained before, small-scale production and the peasantry were officially rejected during the PCC's debate about the Cuba's agrarian question in 1975 (Rojas,1978) and despite agrarian changes since the Special Period the leadership has no unified position on the role of small-scale agriculture and the peasantry in advancing Cuban socialist sustainable development. This is an ongoing concern which resurfaces periodically, particularly in periods of crisis. For instance, in the Special Period and the officialization of urban agriculture, the 2008 crisis and the State-led land redistribution and official launching of the SAP in 2009.

The SAP, based on the land redistribution, focused on suburban idle land, not in response to contestation or demand from *campesino/as* or producers, but as a pragmatic government strategy (as explained in sections 4.6 and 4.7). Since land was not in private hands, there was

no need for confrontation with private property owners (to an extent resonating to "land redistribution", one of the four types of land reform mentioned by Borras and Franco, 2011:111). As such, the government's aim was to increase food production by recovering idle land in suburban areas through input substitution and bringing workers back into agricultural production (Ministerio de Justicia, 2008a). Land was presented as an incentive to return to the countryside for people, primarily youth and women, (Partido Comunista de Cuba, 2017b:28) who had no connection with the land but were keen to get involved in agricultural production. Actual implementation involved land redistribution to diverse actors (individuals, State enterprises and foreigner investors), with differing capacities (labour and capital), amounts of land and lengths of lease. This was reflected in the conditions of land redistribution: Decree Law (DL) 259 in 2008 (Ministerio de Justicia, 2008a), subsequent updates, DL300/12 and 358/18, the Special Development Zone the Marie (DL318,2013), and Foreign Investors Act (DL118). According to DL 259: "The individual must have the necessary conditions to put the land to work and have social and moral conduct according to the ethical values of our society. They must be self-sufficient." (Ministerio de Justicia, 2008a). Redistribution was not strictly directed to the small-scale, pro-poor and gender focused, as envisioned in FS (Borras, 2007; Akram-Lodhi, 2015; La Via Campesina, 2016). The DL 259 requirement contrasted with Raul Castro's statement that "producers will be supported with appropriated incentives" when opening the pilot SAP programme in 2007 (Castro, 2007).

Since no one was barred from applying and the aim was to encourage food production at all levels (*campesino/as*, cooperatives, State enterprises and foreign investment), arguably it was not discriminating against potential small-scale producers. Although not targeting the latter, the SAP's description of the 31 subprogrammes (involving production in organoponics and *parcelas*), implied coexistence of small-scale producers with medium-scale and large-scale State enterprises and cooperatives. Possibly on this assumption, some authors claim that it was focused on small-scale producers, or an FS inspired agrarian reform, e.g. "With the recent hikes in global prices, however, the government of Raul Castro has made a renewed commitment to FS and agrarian reform" (Rosset, 2009:119)[49].

Regarding differentials among the diversity of applicants for land, it is critical to bear in mind that SAP producers were expected to be self-sufficient, so they needed to have either family labour, or capital to invest in hiring others (at least for initial land clearance) or assistance from relatives. Hiring labour implied the existence of landless labourers (working for

[49] This contrasts with the comment of a government official interviewed "the redistribution of land is not an agrarian or land reform, as the land is already in the hands of the State since the winning of the Revolution" (Interviewee, SG29).

family/individuals, cooperatives, State and foreign-owned enterprises), forming another layer of food provider, not considered in the official narrative. Although generically they were also producers, their conditions differed from those with direct land tenure, illustrating the differentiation among the peasantry depending on access to resources (Araghi, 1995; Bernstein, 2006; Tilzey, 2018b). Differentials also affect how SAP producers access institutional support and decision-making power, reflecting their working conditions after gaining access to land (Borras, 2007). Whether the land redistribution was related to agrarian reform or not, it is a key issue for the FS food providers, and in the SAP, as it determines power relations regarding use of natural resources, governance and institutional infrastructure (Borras, 2007). From this perspective, the SAP producers were embedded in Cuba's development strategy that determined these conditions. In other words, access to land was tied to the State's conditions e.g. on access to agricultural inputs and commitment to meet the target production priorities of the State's central planning system. Producers were also embedded in the support network of State institutions, part of the food suppliers for social welfare, and expected to produce beyond family subsistence. "The SAP production units should be cost-effective" stated the director of GNAUS in a public presentation (Rodriguez-Nodals, 2014a). To meet the State targets for Cuba's food demands, which related to the land's social purpose and the reason for giving it in *usufructo;* they had to contribute to soil recovery and protection and conservation of the environment in the production unit, the ecosystem and the territory (MINAG-GNAUS, 2009).

In fact, there was no precise identification of the actors engaged in the SAP suburban agriculture and, more importantly, developing agroecologically based sustainable agriculture. In the SAP guidelines and PCC Development Plan and National Policy Guidelines, those engaged in food production were generally presented as '*campesino/as* or *guajiros*' or producers, regardless of whether they were independent *campesino/as*/producers, food processors in small-scale industries or workers in cooperatives or State enterprises, or whether production took place in suburban, urban or rural areas (as reflected in national statistics). The term 'producer' is used more often in SAP's official documents - e.g. the SAP's Guidelines, its evaluation system, and its subprogrammes, where 'producer' refers to people engaged in productive activities (farming, aquaculture, food processing and distribution, etc.). The SAP priority production unit is the *finca*[50], with diversified production and polycropping based on agroecological sustainable practices, yet without clarity on how this priority was to be applicable to the different types of producers: individuals, cooperatives and State

[50] The literal English translation of *finca* is farm, but it has different connotations in Cuba. As explained in section 5.2.3.1, *finca* can be used to refer to different units regardless of size, mode of production or form of organising production. This research uses the term *finca* according to the types explained in Figure 5.2.2.

enterprises.

Characterising SAP producers by their use of agroecological practices is less clear from both SAP guidelines and the land distribution. In general, terms 'agroecological producer' and 'production' are not used in the SAP's or PCC's official documents (unlike 'organoponics' which are often characterised as organic production). Although using some agroecological practices is part of the SAP principles, producers are not identified as 'agroecological'. That would have required the three types of SAP producers (*campesino/a*, cooperative, State and mixed enterprises) to use agroecological or other sustainable practices, which is not the case. Moreover, the Land Redistribution Law 259 stated that individuals needed to follow phytosanitary regulations and protection of the soil and environment, but the terms agroecology or agroecological practices were not mentioned, hence practicing agroecology was not legally binding. From the SAP Guidelines it could be interpreted that the term producer referred to those directly engaged in agriculture, or in both agriculture and small-scale industries, or only in small-scale food processing.

Another aspect of the conditions for acquiring land in usufruct (since 2008) that helps understand the characterisation of food providers in the SAP, relates to ways of organising production, where the producer can be an individual, a family unit, a cooperative or a State enterprise but must also be associated with a cooperative linked to the State enterprise system. As with the general pattern of collective organisation of production established by the socialist State since the Revolution, land in usufruct for individuals was granted with the proviso that he/she must be associated with a cooperative or the State's *Granja Urbana*. Similarly, cooperatives needed to be authorised by ANAP to be able to receive land.

As explained in chapter 4, the collectivisation of the Cuban peasantry and their mode of production transformed its identity. With peasant proletarianization in State enterprises and collectivisation in State-led cooperatives to increase their productivity, the traditional *campesino* mode of production was largely dismantled, impacting on them as individuals, social, political and economic actors. As in the Russian agrarian question, the peasantry was convenient for political purposes (Engels in Lenin, 1975) but needed to be controlled by the proletariat State. However, being a producer (proletarian or in a cooperative) instead of an independent *campesino/a* is a vital matter of identity and therefore of existence. Characterisation of the *campesino/a* as a producer illustrates standardisation of a world vision, the productivist capitalist system which also permeated socialism (Marx, 1970). In this context, the contrast between being an independent *campesino/a,* and on the other hand being part of a cooperative to be able to receive land in usufruct, can be seen as the main point of

contradiction between the recognition of *campesino/as* as important economic actors while at the same time maintained under the State-led cooperative collective system. Moreover, the concept of family farming (intimately related to traditional *campesino/a*) was only officially reintroduced following the FAO year of Family Farming, and pragmatically often named a family production unit (as in the Russian Style (Chayanov, 1966).

5.2.2.1 How SAP producers are supported in the socialist institutional infrastructure

The coexistence of different types of producers in the SAP is mediated by the social production relations and superstructure of the socialist Cuban State. One such structural relation is the State's tight control of land that prohibits land markets (República de Cuba, 2019), despite the country's double economy model and the existence of private markets (for produce and labour). Bearing in mind this broad national normative framework, Cuban food providers do not face issues such as land grabbing, full liberalisation of trade and pauperisation that threaten peasants in capitalist contexts (Araghi, 2000; Bello, 2009). The FS characterisation of the peasantry as a poor, marginalised class in a capitalist context has theoretical and practical nuances (which are addressed partly in this Pillar and in the Pillar 'Putting Control Locally' which deals with governance).

Bearing the above in mind, the SAP's food providers, like other producers in the agricultural sector, benefit from the State's political and economic strategy, its national infrastructure and development achieved since the Revolution. This includes subsidised transport, housing, health, education, basic public services, and some basic foods within the ration system. Moreover, the Cuban central-planning system determines the provision of services and markets for agro-industrial inputs for all agricultural programmes. Hence infrastructure developed within State institutions (education, research, distribution outlets) is available, plus the Urban Agriculture Programme's infrastructure developed in the previous 20 years. (Table 5.2.1). More specifically, there is "Prioritised attention to producers to support their acquisition of agricultural tools, seeds and breeding stock, training on production and repair of tools and equipment and agricultural extension services, according to the programme." (MINAG-GNAUS, 2009:Introduction). How this support is accessed by producers is discussed below and in FS Pillar 'Building Skills and Knowledge', section 5.6.

Table 5.2.1: SAP's Support Subprogramme

Support to producers existing under UAP until 2000	Centres of support to SAP producers existing in 2018	Subprogrammes related to support and evaluation of producers existing in 2018
Science, technology, training and the environment	CTA	Control and use of land
Agricultural Advice Shop (CTA)	*Granja Urbana*	Agroecological Pest Control
Granja Urbana	CREEs	Use and management of water
CREEs	Irrigation and drainage systems	Movement of units of reference and excellence (USAFP evaluation system)
Control and use of land	Network of Centres and Microcentre of Organic fertilisers	Education and training: circles of interests (education in children's schools) and classrooms within integral *fincas* for producers, students and researchers
Irrigation and drainage systems	Network of seed farms	Operations and control
Organic fertilizers	Nurseries and houses of seedlings	
	Networks of centres of mounting and	
	Artificial insemination	
	Municipal veterinarian clinics	
	Preparation centres to tame and train animals for animal traction	
	Integral fincas for animal feed	
	Expo-fairs	

Source: Prepared from (Companioni et al., 2001; MINAG-GNAUSF, 2015; GNAUSF, 2018)

Notably, the PCC's priority for resource allocation is "agroindustries where there are better opportunities to increase return on investment and efficiency and for application of science and technology. Agricultural sectors generating external income will be developed with revenue from exports or savings from input substitution, other programmes will be for self-sufficiency in the territory, with emphasis on suburban agriculture." (Partido Comunista de Cuba, 2011:27). Information about investment in the overall Urban, Suburban, Agricultural Family Programme (USAFP) or the SAP is difficult to ascertain, aside from sporadic directors' comments in the media, for example in 2017, that financial support for the overall USAFP would amount to 96,000 US dollars until 2020, with 20% from State credit and 80% from international cooperation (Mesa Redonda, 2017). In 2016, it was reported that SAP was receiving tractors, trailers to spread organic fertilizers and refrigerators for the municipal seed *fincas,* with support from international projects. Other inputs, such as parts for irrigation systems were coordinated with MINAG (MINAG-GNAUS, 2015). Another issue regarding access to resources by different types of producers, is that the dual economy and need to attract investment in Cuba, has expanded the window for foreign investors with different regulations regarding amount of land leased, use and commercialisation of produce. This has the potential to create contradictions on access to institutional infrastructure, resources, and competition on prices, produce and labour.

The next section presents producers' views on the above topics, to address the issue from a different level of abstraction to avoid narrow and flat interpretations (Ollman, 2003).

5.2.3 SAP's food providers: the producers' view

As in the official narrative, *campesino/as, guajiros* or producers were the terms used by food providers to describe themselves, whether men or women, independent/family producers, day labourers, cooperative or State enterprise workers. 13 out of 67 producers interviewed are women. A PIAL coordinator commented "land was opened to both women and men, but most tended to be men" (Interviewee, SG3). This reflects the overall statistics of fewer women working in agriculture (ONEI, 2017b). However, most men producers interviewed rely on their women partner's labour since most producers work the land as a family. In this regard, Pérez, Martin and Garcia (2016) present two studies showing that Cuban women's work in agriculture is often made invisible as their work in family care and reproduction is counted as non-remunerative. Moreover, because of this work their possibilities to access work or directive roles or trainings in cooperatives are constrained.

Producers' ages vary from 27-77, with 56.2% in the range 51-77, a producer that commented "it was difficult to attract young people, still thinking with the old mentality, they need to have e.g. internet and computers" (National Workshop on Food Sovereignty (NWFS)). Reflecting the high level of education in Cuba and the modernisation of rural development, all producers have at least secondary level education, seven had pre-university studies, twelve were graduate technicians and sixteen had university degrees. Their knowledge on agriculture/related topics also varied from those who had learnt through family, friends, or formal and informal education, with most having received some training from national organisations and programmes.

Most producers were city dwellers, apart from *finca* owners, and travelled to the land by public subsidised transport or private horse carts. Transport was relatively easy as landholdings were in the nearby suburban area, which they considered rural not far away from the city. Almost all participants had lived most of their lives in the city and regarded the suburban area in which they now had land as rural. Most were unsure of the difference between suburban and rural. Generally, suburban was associated with rural areas with few buildings. Some small-scale food processors in the city obtained their raw materials from producers in the suburban area, and others had their small processing units there, particularly those integrating production and processing. Small-scale industries had women workers, but most coordinators/owners were men - although one small-scale industry owner emphasised that the work was done by the whole family (his wife had left her previous work to join him in the business (Interviewee, MIS1).

5.2.3.1 SAP's producer differentiation according to access to land and forms of production

For the SAP producers interviewed in this research, the most common form of tenure was land in usufruct with a definitive lease to individual producers or cooperatives (CCSs and UBPCs), followed by State enterprises and a few landowners. A CCS president also commented "most of the (225) cooperative members have their land in usufruct and a minority are owners" (Interviewee, PC14). Landowners interviewed had inherited from relatives' land retained after the first agrarian reform, unsurprising considering historical land tenure in Cuba and that the SAP was directly linked to State-led land redistribution in usufruct.

Usufruct recipients interviewed said that accessing land was relatively easy, although with some delays. In their view, land was conveniently located near towns/cities or main roads accessible to public services. "Most of the producers in the suburban area have a good location. We are not in the centre but close enough" (Interviewee, PL2). They could also choose the plot. A producer explained: leases are time-limited, so on expiry producers can be moved to another plot or reapply for the same piece. A woman producer explained: "when we received the land it was for a five-year lease, now we are in the process of renewing it. Our farm is not far away from our house, it is very convenient. I was one of the first women to receive land in those days" (Interviewee, PC19).

Uncertainty about land tenure and length of lease was seen as counterproductive by most producers. The issue was not to have titles or ownership but to have certainty that they could remain, with the consequent impact on achieving sustainable production (Interviewee, PC2). Although recompensed, they would have to start again elsewhere. As a producer stated: "I have received land in usufruct in different locations. I had to move from the first *parcela* as they [government] needed the land to build flats. They gave me another plot on which I had to start again... you cannot make plans or projects as you might have to leave at any moment." (Interviewee, PS24). This was highly inconvenient since most of the land distributed in SAP was infested with marabu (extremely difficult to eradicate), and one requirement for receiving land was to clear it of such species. It took at least two years to have the soil ready for production, so a lease of 5 or even 10 years, was a very short period. "Production under low input and using agroecological techniques was labour intensive, that demanded investment (capital and labour) at least in the first five years. Thus, not having certainty of long tenure poses a threat to development of sustainable production and continuity of food provision." (Interviewee, PL14).

SAP producers were generally named 'small-scale producers'. However, empirical data shows that 'small-scale' landholding was not the norm in the three research sites; moreover, triangulating empirical information with the land distribution laws and national statistics, confirmed that 'small-scale' referred to one type, among other sizes of landholdings. As Figure 5.2.2 shows, SAP producers had diverse landholding sizes, types of management, forms of organising production and production methods. Actual landholdings (regardless of tenure) varied from 0.08ha to more than 200has. Small-, medium- and large-scale landholdings all coexist in the SAP and the overall suburban area, mostly medium (3 to 12has), slightly below what the redistribution law stated (13.4 to 67has) but above common perceptions of small-scale. This is important, given the debate about size of land and sustainable and/or agroecological agriculture, often associated with small-scale peasant or family farming (IAASTD, 2009; FAO, 2014a).

Figure 5.2.2: General characteristics of SAP producers (based on information found in the SAP's Guidelines, agrarian laws and from participant's interviews)

Fincas Integrales Managed by State enterprises, these were created as part of the SAP's supportive subprogramme, and used to produce seeds, breeding stock and organic matter, and as a training and experimentation site for researchers and students. Principles developed in the *finca integral* were then applied to all individual cooperatives according to context.
The State *fincas* were production units managed by State institutions (e.g. the Ministry of Higher Education and Ministry of Agriculture), which contributed to their food self-sufficiency and to social purposes. They produced to meet the production quota for their institution and to sell their surplus in local agro-markets or directly to workers. They used a mixture of farming approaches, e.g. chemical fertilizers combined with biological controls and had a certain degree of diversity in terms of crops and integrated crops with livestock (Interviewee, PS5). Other State *fincas* were managed by Ministry of Revolutionary Armed Forces for self-consumption and direct sales to the public - via for instance the *Ejercito Juvenil del Trabajo's* (EJT) own agro-markets and provisioning the *Acopio* system in considerable quantities (Garcia-Alvarez, Tejeda-Gonzalez, and Hernandez-Morales, 2014). Production was based on a mixture of approaches. The other type of State *finca* was the *Granja Urbana,* managed by State workers, using a mixture of approaches - agroecological but also agrochemicals when available. All State fincas were 100has or more.
UBPCs were medium to large *fincas* managed by worker's cooperatives. They could have a mixed farming approach, with biological controls as well as conventional agricultural techniques, for instance use of agrochemicals and large irrigation systems. Production was mainly for commercial purposes, with some for workers' consumption. They were required to be commercially viable, with no State financial support.
Small and medium *fincas* managed by cooperatives and individual producers with hired day labourers or family labour. They could be subdivided according to the regulations for the land redistribution. 1. *Fincas* varying from 13.4 to 67has of land owned and managed by independent *campesino/as* - or affiliated to cooperatives - and land managed under *usufructo* by cooperatives (CCS) and individuals. Some were managed under an "Integrated Agroecological System of Cattle and Agriculture" and others had an agroecological basis with some use of agrochemicals. 2. *Fincas* of 13.4 to 26has, which were privately owned or in *usufructo* by independent or associated *campesino/as* . Some operated under family farming with no use of chemicals, and others with a mixture of agroecological practices, using some agrochemicals when available and under specific conditions. 3. Smaller land holdings -*parcelas* of around 0.08ha to 0.25ha - which evolved into *fincas* with mixed crops and animals for household subsistence and sale of surplus. These used traditional family farming methods, with a mixture of agroecological practices and occasional use of some agrochemicals when available.
Patios* and *parcelas were managed by individuals or family members, independently or associated to a cooperative or State enterprise, with land up to 2has, patios with the smallest sizes, 5mts and *parcelas 0.08ha to 0.25ha* .
Organoponics and intensive gardens managed by State enterprises or UBPCs tend to be in plots less than 2has.

Source: Author

Cooperatives (CCS and UBPCs) and State enterprises were the commonest forms of organising production, with some independent *campesino/as* and *parceleros*. This reflected the historical State strategy of collectivising work. Affiliation with a cooperative such as the CCSs meant that producers received services from them, but their individual production unit was managed individually, as a cooperative president explained: “Each member has their individual finca and can organise themselves according to their priorities arranged with the State when they took the land in usufruct.” (Interviewee, PC14). Similarly, *finca* owners affiliated to a CCS commented that they *“*manage their finca in their own way” (Interviewees PS6, PS9, PC5). The production unit priority for SAP was stated as *finca.* However, this research found that *finca* was applied to different types of production units in the SAP and overall, in the Cuban agrarian context (see Figure 5.2.2).

Producers interviewed valued differently being affiliated to a cooperative or State enterprise instead of being an independent producer, depending on the consequent ease of accessing resources - natural and social. Some mentioned that being independent was more difficult as they depended solely on themselves (Interviewees, PS2, PS15-26). A cooperative president commented that membership of a cooperative gave more possibilities to commercialise produce and obtain inputs and services. Joining the cooperative was not only for productive purposes. “I am the community officer of my cooperative and I oversee organising issues around the community. We discuss this topic in the meetings as well as undertaking trainings and exchange experiences. “ (Interviewee, PC21). Three *finca* producers, members of an UBPC explained “We have made a lot of progress as part of the cooperative. We exchange our experiences and help each other. The administration keeps things in order for members.” (Interviewees, PL3, PL4 and PL5). Those in cooperatives who were members of ANAP benefitted from access to ANAP’s agroecological trainings through its MACaC programme. Moreover, belonging to a cooperative or State enterprise could give access to more resources and training, as with twelve of the independent *parceleros* interviewed who were looking forward to joining the State Enterprise the Basic Enterprise Unit (UEB) *(Unidad Empresarial Basica*) when they would receive boots, a small hoe, and other tools.

From another perspective, some producers argued that linking individual producers to cooperatives (a requirement to access land) was one way to control them, including their levels of productivity[51]. Independent producers are in practice competing with State enterprises in terms of productivity. Being an individual producer but also part of a cooperative illustrates the

[51] The tension between needing the efficiency and productivity of peasants but controlling their capitalist’s “tendencies”, recalled in the two rectification campaigns (Deere, 1992).

contradiction mentioned before, between recognising the existence of the peasantry with its traditional mode of production, and the conversion of independent *campesino/as* into collectivised workers in either a cooperative or State enterprise (the latter having conventional industrialised production). This relates to another point raised by a producer that although collective production, under cooperatives, was praised for its high productivity, to an extent this was based on small- to medium-scale *finca*s managed individually or by a family unit. Similarly, inclusion of family farming, which was mostly undertaken in rural *fincas,* was a way to link their high performance and knowledge to the urban and suburban programme. (Interviewee, PA1).

Alongside the collective system, individual *campesino/a* family farming has always existed and endured. Family farming is associated with '*el guateque*', a place where *campesino/as* have traditionally produced staples and reared animals[52], hence providing family food, fibre and tobacco, but also supplying those in nearby areas (urban and suburban). In this sense the peasant mode of production has been maintained in the country (Alvarez, 2001) through historical transformations, as has also been the case globally (van-der-Ploeg, 2018). This resonates with the premise of the FS food providers as a non-static concept. The multiple purpose of the traditional *finca*, now leads to the characterisation of SAP producers according to the purpose of their livelihoods.

5.2.3.2 Individual producer's multipurpose production: a livelihood and way of life

Overall, SAP's small- and medium-scale individual or family producers (independent or in cooperatives) were engaged in bringing redistributed land back into production, as per the national development plan, and contributing to the programme's targets at multiple levels, including diversity of food production, integration of farming methods, sustainability (restoring the land and soil, protecting the environment while being economically viable). All individual producers, regardless of their production unit, said that they produced for various interrelated purposes: Self-consumption; To meet State targets (even some patio and *parcelero*s with no State contracts said they sometimes donated produce for social feeding); Generating extra income by selling in the private market; In some cases, generating energy, biological fertilizers and compost; and Maximising productivity through food processing. Their diverse production contributes to the overall availability of food in the country as discussed in FS Pillar 'Focusing on Food for People' section 5.4.

[52] It has existed since colonial times when it was located near the centrals (Sugar mills), in areas with a rural and urban context (Callejas-Opisso *et al*., 2015).

The multiple purposes of SAP producers and their efficiency in meeting the SAP targets and expectations of the land redistribution contrasts with their categorisation as small-scale producers for self-consumption. As one participant noted, sometimes individual producers can be more efficient than a larger entity (Interviewee, PL6). Two producers of organic fertilizers confirmed that their production was extremely efficient and could supply most of the producers if allowed to (Interviewees PL6 and PL1). In this respect and given the State's objective of land recovery, all producers interviewed commented that they had restored the soil and brought land back into production despite the difficulties and hard work involved. Despite this, the appropriate use of land given in usufruct to small- and medium-scale producers was disputed by some government sectors, as expressed by some participants in the National Workshop on Food Sovereignty (see Appendix 5.1). Producers felt blamed for problems in agricultural production without considering the conditions they faced.

The DL 259 stated that individuals must have the means to put the land into production, e.g. capacity to hire labour as in the case of cooperatives, so effectively it meant that they needed their own financial and/or human resources to use the land productively. Moreover, SAP producers were responsible for meeting the State production targets for national food consumption (people and industries), requiring, their units to be efficient, not only for self-consumption. This was extremely demanding, "in the first years at least a producer must have 5000 Cuban Pesos (CUP) (US$208) to make the *finca* operational and productive. Running a *finca* under sustainable practices does not mean there are no investment costs - a problem for producers who have neither the capital nor close relatives to work it." (Interviewee, PL14). As Wood (2002) argues it means working extra hours or exploiting family members to remain viable. Except for patios and *parcelas,* most *finca* producers said that they must hire labour, especially during land preparation and harvesting, since even in a family production unit there were not enough family members and significant work to put land back into production. One of the first women to receive land commented: "it was not possible for me without my son and hiring some workers to clear the land as it was infested with *Marabu*." (Interviewee, PC2).

From another angle, for producers interviewed (individuals and cooperative workers) working the land was not a matter of finding any type of job. Although the official narrative presented land redistribution as a strategy to bring the labour force back to the countryside, for producers it was more than seeking employment, contradicting the argument about peasants seeking a job instead of land (McMichael, 2006; Bernstein, 2013). For producers it was above all wanting to have a better life, to produce their own food, to be independent, and to build a livelihood rather than earning a wage. The *finca* or *parcela* was perceived as a livelihood and lifestyle rather than a job. Moreover, hiring labour was a necessity rather than to make surplus capital.

It was firstly to put the land into production, help to meet State targets, make a surplus to pay labour, savings to maintain production and income to meet food (not covered in the ration system) and non-food needs. However, they also perceived their *finca* as a business that needed to be economically viable, especially since they have a contract with the State; “When you receive land, the purpose is decided depending on the type of land and needs of the government” (Interviewee, PC6). These priorities could also change from time to time in the suburban area and not always be suited to the ecosystems but subject to government decisions (Interviewees, PS6, PS7, PS24).

The aim of surplus generation was not akin to producing entirely for capital production and accumulation through exploitation of labour, capital investment and production for exchange-value involving farmers and entrepreneurs, argued by van der Ploeg (2010), or petty commodity producers in Bernstein’s analysis in the capitalist context (2006). Yet they were not entirely small-scale peasant subsistence producers but could be called traditional multifunctional family *fincas* affiliated to cooperatives. The next FS Pillar, ‘Localising Food Systems’, presents another aspect of the SAP providers, namely their relationship with the market. The following section focuses on how SAP producers are supported in their livelihoods.

5.2.3.3 Supporting SAP’s food providers in praxis

As already described, the national infrastructure developed for basic service provision was subsidised and accessed by all programmes. However, access to agricultural inputs, training and extension services and financial services according to the economic model, differed depending on: the production programme (e.g. the SAP or *Polos Productivos*), the forms of organising production (e.g. UBPC or CCS) and State target production priorities, as well as whether the producer had a contract with the State. Although all producers in principle had access to land, either in usufruct or owned, and were organised collectively, effectively there were differences, e.g. in labour processes, use of specific technologies, productive systems, capacity to access inputs and other socio-political aspects (the latter discussed in FS ‘Pillar Putting Control Locally’).

These issues were largely captured by participants’ general sense that their size of landholding was not a problem, but other factors were. For instance, regarding labour availability, a *parcelero* said “it is enough land, anyway if you have more there would be problems with shortage of labour and finding the tools or other things needed” (Interviewee, PS2). Other producers had concerns about infrastructure to connect with services, conditions

of produce distribution and freedom to decide on their own production issues. One explained "having highly efficient small-scale private producers was a concern to the government, in case they enriched themselves, but more importantly, because individual producer's high productivity exposes low productivity levels in State enterprises." (Interviewee, PL1). As Deere (1992) argued in a previous study, collectivisation and/or fragmentation of land in small landholdings was also a political issue. Land gives power to individuals, therefore ownership needed to be State controlled to control capitalist tendencies, as in the 'correction of mistakes' campaigns by the leadership (Castro, 2016).

Acquisition of seeds, breed stock, manure, fertilizers, biological controls, agricultural tools and some agrochemicals was mainly through State contracts for target production. Once the social purpose was established, a contract (including prices for products and inputs) was agreed between the producer and State enterprise. As producers commented, they did not directly manage inputs such as seeds and biological controls but relied on State production and provision through the CREES and State enterprises. This was particularly problematic as it was not always reliable, due to competing demand for biological pest controls from all agricultural programmes, including those managed with conventional agriculture.

Considering the importance of seed and its impact on sustainable agriculture (Kloppenburg, 2011) - and the official narrative's emphasis on reducing external inputs, it was surprising that the SAP did not focus on individual seed saving. Instead, the approach was to develop municipal infrastructure by setting up one *Finca Integral* per municipality whose priority was producing seeds. This contrasted with other programmes such as PIAL which emphasised participatory plant breeding and developing seeds fairs. Very few producers interviewed saved and stored their seeds, although three did so for most of their crops.

SAP's producers also accessed agricultural inputs and some extension services through the *Granja Urbana* and the Agriculturalist Advice-Shop (CTA), as did any other producers (urban, rural or suburban). Although the CTA and the *Granja Urbana* were created as support for urban and suburban agriculture, effectively they serviced any type of producer. A CTA attendant with 25 years' experience, explained the CTA's importance to producers, "We cover all producers in the municipality. It does not matter if it is urban or suburban, people come and book appointments with the agricultural extensionist for home visits, sometimes we cannot cope with the demand." (Interviewee, SG34). This resonates with some producers' concern about difficulty accessing services in CTAs as they did not always have stock available. This was particularly problematic for *parceleros* and patio owners who explained that: "Because we are independent, we don't receive inputs or tools like producers who are members of the

Granja Urbana or linked to a cooperative. When we get affiliated, we will be able to get tools and other things" (Interviewee, PS24).

5.2.4 Summary

This section presented a close analysis of the empirical aspects of the characterisation of the SAP food providers. It covered access to means of production, forms of organising production and institutional support, including the impact of the requirements of the law on land redistribution on achieving sustainability and diversifying food production. SAP food providers were often characterised as undertaking small-scale sustainable and self-sufficient agriculture. However, contrasting direct empirical information from SAP producers and official data regarding land redistribution showed that the programme included small-, medium- and large-scale producers. They could be independent *campesino/as*, cooperatives or State enterprises, as confirmed by diversity of production units described in Figure 5.2.2. In addition, following the PCC's historical tendency to collectivise land and *campesino/as,* and according to DL 259, *campesino/as* were officially asked to affiliate with a cooperative to receive land (Ministerio de Justicia, 2008a).

The collective form of organising production and general assumption that the SAP comprised small-scale producers confused perceptions of the identity of food producers in the programme. Differences in scale were determined by examining in detail issues such as tenure, ownership, land size and the associated agricultural methods and technologies used as well as the intended purpose of production, (see Figure 5.2.2). Regarding the latter, although there was differentiation among food providers in terms of access to land and inputs most are expected to meet the targets of the State central planning system.

Attention was drawn to how access to resources and institutional support contributed to differentiation of producers, among those who were part of the programme and those were not but received the same support from the same institutions. For example that land redistribution was not necessarily focused on small-scale food providers or committed to FS as Rosset (2009) and Giraldo and McCune (2019) have argued. Differences in requirements to access land in usufruct meant differences in length and security of land tenure which producers confirmed was critical for the sustainability and diversity sought by the SAP. Other resources, such as capital assets, seeds, manure and biological controls, fundamental for sustainable low inputs, were accessed differently according to the type of production unit, with small-scale producers experiencing more difficulties attaining them, as effectively they were competing with all producers in the agricultural sector, including large State enterprises,

industrial-scale cooperatives and State-private operations. While in principle conditions of land redistribution applied equally to all individuals and legal entities, not all had the capacity (labour and capital), required by law, to put the land into production.

The research findings also showed that producers most suited to sustainable agriculture and using agroecological practices as intended in the SAP's multipurpose aim were small-scale (organoponics and *parcelas*) but primarily medium-scale producers who could be individual *campesino/as* running their own *fincas* but affiliated to a cooperative or State enterprise and CCSs. These *campesino/as* were a mix of individuals in both urban and rural areas with some living in the actual suburban area where their land granted in usufruct was located. Their livelihoods were multipurpose, providing self-provisioning as well as meeting national State targets under diversified forms of production using low input agroecological practices. This characterisation of the SAP producers is recalled in the next section, connecting food production and distribution dimensions, in the FS Pillar 'Localising Food Systems'.

5.3 FS Pillar Third: Localising Food Systems

The localising of food systems as proposed by the FS framework is often presented within the remit of food distribution. Around this, the issue of space construction, as a social and political construct, is addressed. Bearing this in mind, the key themes through which to explore the SAP in this Pillar are twofold. Firstly, the suburban space in which the programme takes place, which addresses issues of SAP's scale and scope, chiefly around the local versus national and the historical division between the countryside and the city and how suburban is understood in this context. Secondly, it explores processes of food distribution and processing as conceived in the SAP's multipurpose strategy. This builds on information about the world vision of the SAP and characterisation of its food providers presented in the previous two FS Pillars. In doing this, it addresses how suburban sustainable agroecological food production is connected to the Cuban national development strategy, at household, local and national levels, through the Cuban centrally planned economy.

5.3.1 The 'localising' of food sovereignty

FS and agroecology advocates' arguments for localising food systems are often focused on food distribution or bringing together producers and consumers (Nyéléni, 2007).This is also linked to the debate about connecting or inserting producers to markets (within the capitalist and socialist structure) or even global supply chains (Burnett and Murphy, 2014; FAO-INRA,

2018). However, from the point of view of the FS's vision of ending alienated and master-slave capitalist relations among people, and between people and nature, localising is beyond the remit of the market. It is about reconstruction of social relations and relations with nature and thus how wealth is produced and distributed (Moore, 2015). In this sense localising FS relates to division of labour (agricultural and industrial) and how this relates to the urban and countryside division within processes of capitalist formation (Marx, 1976) and some forms of socialist capital accumulation, as reflected by Preobrazhesky Evgenii (Bernstein, 2006; Kay, 2009; Akram-Lodhi and Kay, 2010a). FS therefore can be connected to a transformation of the space through resolving the rupture of socio-economic, ecological and political relations and processes, or mending the rupture of the interdependent metabolism in nature and social relations (Marx in Bellamy-Foster John, 2000).

5.3.1.1 Localising food systems: distribution of wealth

Food distribution characterised as exchanges of commodities in the market, is separated from wealth production and redistribution (Marx, 1970; Ollman, 1998). Within this perspective of distribution, the debate in FS is presented as an issue of regulating the market and trade, as well as ensuring suitable markets for small-scale food providers. This is presented as *"*Food sovereignty does not negate trade, but rather, it promotes the reformulation of trade policies and practices*" (*Nyéléni, 2007:25). This reflects on some views among social movements pursuing FS. For instance, some of their members advocate for the inclusion of small-scale food providers in international trade while stressing the necessary conditions for this to happen (Burnett and Murphy, 2014). The debate about regulating trade or rejecting it reflects a fundamental contradiction between pursuing a radical transformation of society and food systems or changing/reforming some aspects of it in a Polanyian perspective (Holt-Giménez and Shattuck, 2011; Henderson, 2017; Tilzey, 2018b). Moreover, these aspects are intimately related to the mode of production, and therefore existing social-property relations (class differences) and specific social-nature relations.

The FS advocates' demand for reforming or reducing international trade (La Via Campesina, 2008) neglects the fact that, above all, both markets and international trade are driven by the logic of capital generation and accumulation (Marx, 1976). The "market" here is not simply a mechanism of circulation but the medium of basic social-property relations, carrying with it the imperatives of competition, profit-maximization and increasing labour productivity." (Wood, 2002:51). The market, in its capitalist structure, in both capitalist and existing versions of socialism, encourages production of commodities for exchange-value in conditions of unbalanced competition, whether alternative food networks (Born and Purcell, 2006) or nested

markets (FAO-INRA, 2018). Based on the comparative advantage premise it imposes specialisation which in turn have negative effects on diversification (Wood, 2002), which is particularly challenging, considering that fundamental principles of FS-Agroecology are diversity and sustainability (Nyéléni, 2007; Perfecto, Vandermeer and Wright, 2009). Moreover, the market, in these terms, is the place (physical and non-physical) where different exchanges and different scales are interconnected, not only for food but also for other produce, inputs, labour and capital (Ollman, 1998). Moreover, it is not by choice that people enter into the market (Wood, 2009).

The above ideas bring to the fore the debate on the role of the State - and global para-State institutions - in determining the conditions of distribution and more precisely the market, and whether the State is perceived as a neutral regulator or as an inherently involved entity, in both stating the conditions for and taking part in the market (Ollman, 1998). Moreover, the argument that the State can be a catalyst for change through its intervention in the process of distribution, depends on the strategic relations or positioning of social actors within the State-civil society structure (Gramsci, 1971; Jessop, 2005), moreover key to consider that the State is not a neutral entity (Kropotkin, 1898; Lenin, 1966; Dolgoff, 1972). The call to reform-regulate the market or to create local markets, without transforming social-property relations and relying on the State, is a way to counteract the wider and transformational FS's ambition. This is because by default the demand is embedding small-scale farmers in the notion of competition and maximisation of value (Wood, 2002), thus creating the context for winners and losers of the system. This is somewhat akin to the World Bank (2007) strategy connecting small-scale food providers to local markets and global supply chains, rolled out even in countries in which FS has been officially adopted (McKay, 2020).

Another critical aspect often overlooked in the localising of food systems is the de-coupling of agriculture and industrial production and distribution and its relation to division of labour and the countryside and cities (Moore, 2011). Coupling food production and processing is key to developing sustainable and diversified food systems and communities (Breitbach, 2007). Linking these two dimensions of the food system means, from an ecological point of view, maximising natural resource use in terms of outputs. This means diversifying production but at the same time conserving resources through recycling and avoiding agricultural loses (Jones, Pimbert, and Jiggins, 2011). From the point of view of division of labour and the separation of countryside and city, it is concerned with repairing the metabolic rift as Marx argues (Bellamy-Foster, 2000), reconnecting agricultural processing within food providers and communities. This strengthens local development while retaining populations and knowledge as it generates sources of employment linked to agricultural production. Moreover,

small food processing agro-industries humanise and de-commodify the concept of industrial workers, and prevent the concentration of agro-industrial capital and corporatisation of nature (Kneen, 1993; Mooney, 2018).

The concept of coupling agricultural production and industry - within the perspective of small-scale industry - has not been explored in depth in the debate on FS. There are studies on ecological impact due to the loss of soil nutrients and to an extent the loss of peasants' knowledge when forced to move into industries and/or to urban centres, contributing to the metabolic rift (Schneider and McMichael, 2010; Clausen, Clark and Longo, 2015) and reducing the recovery of soil nutrients, in suburban agriculture studies (Joachim *et al.*, 2006; Cofie, Jackson and Water, 2013; Renting and Dubbeling, 2013). However, from the perspective of FS-Agroecology and its call for paradigm change, there is a gap in addressing structural issues of uneven development in the process of decoupling industry (Amin, 1976; Harvey, 2006; Moore, 2011). In this respect, the research and exploration of the SAP's coupling of sustainable agriculture and small-scale agroindustry and its praxis by medium-scale *campesino/as* and producers in Cuba, contributes to fill that gap.

The next sections address, first, the SAP's official narrative about how its aim of developing sustainable food production is pursued conceived in relation to localising food systems. Second, it explores the view of research participants about the spatialization of their livelihoods.

5.3.2 Localising the SAP in the municipality as strategy to reduce cost

The official emphasis on the suburban space and its links with the creation of the SAP, in its earlier stages, was tied to administrative reforms to address problems with the State's functions, some of them concerning the agricultural sector. From a political economy point of view, the suburban space (as a social construction) in the policy making of the SAP can be interpreted as a State's economic and political strategy. Expressed in the narrative of Raul Castro's speech in 2009, as "the urgency of maximising in the most intensive form the land around almost all towns and cities…we have called this the programme of suburban agriculture… it is necessary to work not only in agriculture but in any productive activity or services that provide income to the nation or for import substitution." (Castro, 2009). The strategy was not necessarily towards resettling people in the countryside or suburban areas but was about redirecting the labour force towards the land, organised in cooperatives (as usufruct users under the Land Redistribution Law had to be associated to cooperatives). Moreover, it was to address the economic and political needs of the country, not the needs or

pressures of a social group or class, or landless people, small-scale producers or land grabbers, as in cases in which rural migration or urban expansion by capital ventures takes place (Bello, 2009; Holt-Giménez and Shattuck, 2011). Raul Castro stressed “we have to make the management of our government more efficient” (Castro, 2016).

This efficiency was expected “to concentrate some economic activities, with a smaller number of the State central administration’s entities”, “to increase agricultural production and improve its commercialisation” (Ibid). Both increasing production and improving commercialisation were linked to two State administrative reforms impacting the SAP’s ‘localising’. These were the land redistribution (explained in the second FS Pillar in this chapter and chapter 4) and the pilot scheme to decentralise some aspects of agricultural produce commercialisation. The latter was intended to transform the State’s collection and distribution enterprise (*Acopio),* and the commercialisation of agricultural produce. These reforms guided the formulation of the SAP with its emphasis on the municipality and reducing distances between the producer and outlets (MINAG-GNAUS, 2009). Bearing this in mind the SAP’s ‘localising’ was not primarily aiming at developing or strengthening community relations but to ensure “production and reduction of loses, which was strategic task for national security.” (Castro, 2009).

5.3.2.1 SAP’s local and national scope

The official decision to develop a programme in the suburban areas under the municipal administration and its insertion in the mixed approach of the Socio-economic Model (Partido Comunista de Cuba, 2017b), indicates two juxtaposed, - and sometimes contradictory - angles, being local and the same time having a national reach. This point can be explored in the official narrative around distribution and food processing within the SAP. The concept of suburban agriculture is associated with the concept of territory and more precisely to suburban spaces of rural towns and cities under municipal[53] administration (MINAG-GNAUS, 2009; Partido Comunista de Cuba, 2017b). The official SAP Guidelines state, “the area to be used is the municipality to avoid long distances, applying a flexible marketing system with proximity between producers and the destination of products within a rigorously controlled process.” (MINAG-GNAUS, 2009:introduction). Moreover, according to the definition of suburban agriculture created for the programme (presented in chapter 3, Figure 3.1) the distance between the production units and selling points should not be more than 4-5 Km.

In this context, the SAP aims to produce food close to small-scale industries and provide local

[53] The concept of territory in Cuban agrarian law was used to referrer to the municipality, the province and the nation as politico-administrative units.

outlets for distribution. This to an extent, resonates with the emphasis that FS has placed on the distribution aspect when characterising the 'Localising Food Systems' (Nyéléni, 2007). For instance, the debate about the local versus national or global scales of trade (Burnett and Murphy, 2014) and the need of markets for small-scale production from the perspective of agroecology (Rahmanian *et al*., 2016; FAO-INRA, 2018). However, the Cuban distribution model offers further nuances. The SAP localised food production (fresh agricultural produce and processed food) is inserted into the centralised management of production system (explained in chapter 4). As described in Figure 5.3.1, besides the national rationing system outlets and the centres for social feeding, SAP production crosscut all the outlets for private selling and buying food that constitute the supply-and-demand market. This means that the SAP is contributing directly to both local and national food provisioning to the population and industries e.g. tourism. This aspect is addressed in the sections below, while discussing how food distribution and small-scale agroindustry takes place in the SAP.

Figure 5.3.1: Network of wholesale and retail dealers in the supply-and-demand Market

The network of retail and wholesale dealers operating under prices set by the supply-and-demand market includes: 1. State enterprises 2. Non-Agricultural Cooperatives, 3. State agromarkets rented to productive units and *cuentapropistas* and 4. Agromarkets managed by State enterprises.
Wholesale agro-markets managed by State enterprises, they can rent spaces to non-agricultural cooperatives which are also allowed to sublet.
Cuentapropistas **-** self-employed workers **-** who can also operate within the wholesale agromarket, buying products from the State enterprises, to resell to retail dealers authorised by provincial administrations. There is however no authorisation to sell imported products.
Carretilleros are also *cuentapropistas* who sell agricultural products in public spaces without having a fixed location.
Selling points can be administrated by State enterprises with hired labour, others are owned by small-scale producers (usufructuaries' and/or owners) with their own production and selling points in *fincas* and organoponics.
Centres for social feeding continue to be provided by State enterprises, but they are also allowed to buy agricultural products in this network.

Source: (Ministerio de Justicia, 2013)

5.3.3 SAP's 'localising food systems' in praxis: the flexible and pragmatic strategy

The SAP contributes to localised food production, processing, and distribution, while also bringing locally produced food into the national context, having in this sense a mix of short and long food supply chains (Malak-Rawlikowska *et al*., 2019), centralised by the State. This can be understood within the socialist principle of production and redistribution of wealth in Cuba (República de Cuba, 2019). The creation of the SAP and the administrative reforms alongside it, are on one hand for wealth generation, (for example putting land into production that would provide the population's food and food-materials for industry - e.g. for the tourist sector) and on the other hand they are part of the system for distributing wealth, for instance, through

investment in the education and health systems and the national food provisioning programmes. The latter include food distribution through the subsidised ration system, the social feeding programme for schools, hospitals, nursing homes, homes for pregnant women and the food sold through the State market.

Under the national food provisioning system, most production is distributed across the country, and in most cases, it travels from one municipality or province to another regardless of whether it is from the SAP or from rural, suburban or urban origin, or how it is produced (organically, agroecologically or conventionally). Thus, food generally travels from producer to consumer in more than two stages, or by a longer route when including intermediaries. The process of distribution was captured by two participants, one providing an experience of the distribution flow in one of the provinces, Mayabeque, in which the decentralisation scheme operated:

> *"*Most of the production that we receive in the enterprise comes from outside the town. The cooperatives are responsible for bringing the produce to the selling points for example *placitas*. besides the *placitas* there are also the *carretilleros*. To cope with the demands of the municipality, sometimes it is necessary to exchange production with Pinar del Rio province, but if there is surplus production it is sold in Havana or to the processing industry." (Interviewee*, SG25).*

And the other, an attendant in a small selling point (*placita de mercado*), in the city of Cienfuegos which is not part of the decentralisation scheme.

> "Production is carried by truck from the *fincas* towards *Acopio* and is distributed in the municipality's 13 State agromarkets. It is then sold at about 50 selling points (agricultural fairs, small markets, large agromarkets and *Bodegas* (stores of the ration system). The selling points can be in the city of Cienfuegos or outside. I receive whatever is available from the agromarket I am affiliated to. I don't know where the food is coming from. Vegetables are mostly sold at the organoponics. There are also *carretilleros* and street vendors who walk about selling food." (Interviewee, DC2).

In this context the SAP's priority of connecting producers to outlets as directly as possible by avoiding intermediaries or long distances, is not always the case, as the need to meet national strategic demands is an overriding priority. The SAP supplies big cities from different provinces, especially Havana, except in the case of perishable foods such as vegetables and fresh spices. A MINAG delegate for Havana's province stated in a meeting, "Havana produces 20% of its food with the contribution of the USAPF, but despite this it must be provisioned by

other provinces." (notes taken at an ACTAF's meeting, June 2017). A local official also stated: "All provinces provide food to Havana, there is no other way to cope with its high demand, for instance 12% of the production in Mayabeque goes to Havana. That is top priority. Every week several trucks are taking food to the capital." The same view was expressed by a coordinator of food transportation to one of the big agro-fairs in the city of Cienfuegos: "We are not only responsible for transporting food to this fair but also for ensuring that drivers get to Havana with food; and you know that here, transport logistics are not easy." (Interviewee, SG32).

A provincial delegate of the Ministry of Agriculture explained that the main difference, as officially stated, between the decentralisation pilot experiment (in Mayabeque, Havana and Artemisa) and other provinces is that the former has more decision-making power in the agricultural sector. In empirical terms, this seemed to be related to ensuring compliance with central decisions, rather than effective devolution of power to make decisions (Fisher, 1998). This reflected the comment of another local government official: "Provinces and municipalities had direct responsibility for organising and controlling the process of commercialisation ensuring that regulations on prices set by the Finance and Pricing Ministry are met and regulating and reviewing loses after products are stored. The new system continues to include the State markets and the supply-and-demand market." (Interviewee, SG30). In both situations, whether commercialisation is decentralised or not, the State enterprises *Acopio, Frutas Selecta* and the *Granja Urbana* are included.

The experiences of SAP producers and information collected through active participation on food distribution flows in the research's three sites, also confirms that food travels from one municipality or province to another on a regular basis and it is not always easy to trace its origin as it is shown in Table 5.3.1.

Table 5.3.1: Commercialisation of produce in the research three sites

SAN JOSE DE LAS LAJAS				
	Outlet	**Products**	**Place of Origin**	**Place of Selling**
SAP Producers involved in commercialisation Small-scale industries with selling points	At the *parcela* and *organoponico* gate, Cooperative collects and takes produce to Acopio Small-scale industry Selling point Social feeding programme.	Mixed crops, animal meat, vegetables and fresh spices, fruits and laurel plants and leaves Small-scale industry: tomato paste, juices, vinegar and wine.	Suburban	City of San Jose de las Lajas (SJDL) urban and suburban Other provinces.
State market	Agricultural Fair (Monthly and Weekly) Municipal enterprise State agromarket Selling point Stalls inside private houses ('mesas') Ration System Bodega and Butcher Collection Stores of Foreign Currency (TRD).	Mixed crops, rice, beans, eggs, sugar, coffee, animal meat and dairy products, food processed in small industries.	Suburban, urban and rural areas of different municipalities The TRD sold imported and nationally produced food.	SJDL urban and suburban

Supply and demand network of retailers	*Carretillero*	Vegetables and fruits	Bought from trucks - no knowing procedence.	SJDL urban
	Private Agromarkets	Imported and national food sold in CUC	The Agro-fair sold food nationally from suburban and rural areas of different municipalities.	SJDL and Tapaste town
HAVANA				
SAP producers Small-scale Industry	Finca and organoponic gate. Cooperative (CCS and UBPC) collects and takes to State enterprises Social Feeding Programme	Mixed crops, meat (pigs, goats and sheep) goat's milk, vegetables and fresh spices, fruits, ornamental plants, postures, organic fertilizers (solid and liquid) and flowers. Small-scale-industry: goat cheese and dairy products.	Suburban	Suburban and urban areas in Havana.
Supply and demand network of retailers	Private agromarkets Cuentapropistas Selling points	Mixed crops, fruits, vegetables, dry and fresh condiments, rice, beans, sugar, coffee, food processed in small-scale industries and large national industries.	From urban, suburban and rural areas of different provinces	Suburban and urban
	Carretillero Street vendors	Vegetables, fruits, root and tubers.	Unidentified	Urban and suburban
	Paladares Agroecological-tourism Small-scale industries	Mixed crops, fruits, vegetables, dry and fresh condiments, honey, goat's milk, cheese, yoghurt, and butter.	Suburban, rural and urban	Urban and suburban
	State agromarkets (wholesale and retail)	Mixed crops, fruits, vegetables, dry and fresh condiments, rice, beans, sugar, coffee, food processed in small-industries and large national industries.	From urban, suburban and rural areas of different provinces	Urban
State market	Youth Workers Army (ETJ) agromarkets	Mixed crops, fruits, vegetables, dry and fresh condiments, rice, beans, sugar, coffee, oil, food processed in small-industries and large national industries. Fresh chicken and pork.	Suburban and rural	Urban
	Ration system store and butcher	Beans, rice, powder milk, sugar, coffee, eggs, tobacco, cooking oil, Meat (not processed and processed meat: beef, poultry and pork) and eggs.	From urban, suburban and rural areas of different provinces	urban and suburban
	CTAs	Plants, young postures, seeds, agricultural products, natural medicines.	Different origins in the country	Urban and suburban
	Restaurants and hotels of State and mixed State and private capital (foreign and national)	Include all food mentioned in other outlets plus food such as beef, fish, seafood which is only available in TRDs and bought in CUC.	Urban, suburban and rural outside and inside Havana	Havana
	TRD	Food sold in CUC includes: rice, beans, coffee, sugar, powder milk, cooking oil, butter, cheese, chicken meat (processed and unprocessed), pastas, tomato sauces, sweets, ice-cream, biscuits, tins of sardines and tuna and fizzy drinks eg coca-cola.	Imported	Urban and suburban
Outside the official markets	Individuals	Fresh fish, beef and another animal meat and milk.	Not identified	Havana
CITY OF CIENFUEGOS				
SAP Producers Small-scale - industries	*Acopio,* Agricultural State Enterprise, social feeding programme, on farm and organoponic direct selling points, private agromarkets and mini-industries' selling points.	Mixed crops, animal meat, dairy products, vegetables, fruits, seeds and postures for fruit trees. Small-scale industry: processed meat, juices, tomato paste, vinegar and sweets.	Suburban	Cienfuegos province and Havana.
State market	Placita de Mercado Bodega Agromarket TRD.	Mixed crops, rice, beans, eggs, sugar, coffee, animal meat and dairy products, processed food in small-scale industries.	No precise origin. TRD: imported and nationally produced food.	City of Cienfuegos
Supply and demand network of retailers	*Carretilleros*	Vegetables and fruits	No precise origin	Urban and suburban area of Municipality of Cienfuegos.
	Private Agromarkets Monthly Agricultural Fair	Meat, rice and beans	Agro-fair: food from suburban and rural areas of different municipalities.	City of Cienfuegos and Havana

Source: Author

Most exchanges between producers and non-producers are mediated by one of the State enterprises, the cooperative, and the intermediaries. It is also difficult to ascertain where the food is coming from, whether from rural or suburban areas, or from different locations e.g. municipalities or provinces. Other exchanges in which short distances are involved, thus having more localised distribution, is in the case of organoponics or *parcelas*, home gardens, *parcelas* and a few *fincas* who sell food on-site, as well as cases in which producers handed in their State target production directly to social feeding programmes e.g. schools, hospitals and for workers canteens in other State institutions.

From this overview of how food providers production is part of the national system, it can be assumed that the national scheme of food distribution is key for the national social feeding programme, balancing food provisioning for everyone, which is critical for non-producers both in terms of social feeding programmes and as food buyers. It is also a mechanism for producers to have access to "mediated markets" (Wittman and Blesh, 2017). Linking the producers to public procurement is to an extent in line with the FS social movements and agroecology advocates' call for secured markets. As participants in the National Workshop on Food Sovereignty (NWFS) debated, the concern in Cuba is how the State market is managed, the historical problems that this carries and the strategy to resolve them. This is further analysed below.

Going back to food systems' 'localising' in the SAP, the balance to strike is between building communities and local development while securing a mechanism for producers to distribute their produce. The policy ambition of proximity needs to be consistent within the overall commercialisation system to balance local and national demands, as well as to meet producers' expectations of an agile commercialisation system. (Malak-Rawlikowska *et al*., 2019), thus, having a double economic and social effect. On the one hand having flexibility for a fluid connectivity between urban, suburban and rural which is evident in the SAP distribution flow, as explained by producers. This was even more important if producers were part of public procurement, as their production would travel across different municipalities and provinces. On the other hand, reducing travel distances between producers and distribution outlets is in theory a strategy that not only could reduce input costs but also could generate, closeness, trust and solidarity between producers and non-producers as in the debate about equality and justice in localising food systems (DuPuis and Goodman, 2005; Breitbach, 2007) even if it is as an unintended impact.

The debate about the 'local' and the need to have markets, from the point of view of a centralised system as in Cuba, poses an important question in terms of governance structures

at the municipality level and decentralisation, which seems an apparent concern of the Cuban leadership. From the perspective of building communities and local development, having decision-making power, not only at the local administrative level and in relation to commercialisation but at the producers and non-producer level, is crucial to building FS. Bearing in mind the cooperative system in Cuba, this could be a starting point for devolving governance structures to manage resources as demonstrated in other spaces of communal and cooperative management (Cabannes, 2014). This would imply a localisation of the entire food system, not only from the point of view of food production/distribution.

This scenario demonstrates that policy needs to be coherent with issues of reconstruction of the social fabric between the city and rural areas, particularly bearing in mind the leadership's ambition to bring back people to the land. Balancing the local and the national in this sense would not be a matter of feeding populated centres but promoting even distribution of resources and development, linking production, processing, and distribution in a two-way flow and not only towards the centre (or concentrating on big cities). Otherwise, the potential of the programme to reduce loses could be instead a way to deepen the division between the rural and urban and even worst creating differences among producers and how people (both producers and non-producers) access food when both are introduced into the market, as discussed in the next section.

5.3.3.1 Producers' relations with the market

SAP's producers were connected to the State market before production started, especially those who received land in usufruct since 2008. Their insertion into the market was established first through the State's mediated market, where they produced to an agreed contract for value-exchange. Most producers interviewed appreciated their livelihoods because they want to make a living that is economically viable. Some have the ambition to expand their reach to international trade (Interviewee, PL11) or nationally through the supply-and-demand market. But above all, they have to meet the State targets for land use, therefore have to run a profitable business in order to reinvest in it, pay wages, meet their own needs and make savings (Interviewees, PC2, PC9, PC7, PL5). Their vision of accessing the market somehow resonates with the FS debate about some small-scale food providers wanting to access international trade (Burnett and Murphy, 2014).

In order to be profitable, producers need to be efficient in their modes of production. First, they have to reclaim the land, invest in soil nourishment, focus efforts on the agreed target (either animals or crops) for which they have to hire labour or use extra family work, while diversifying

production and managing ecosystems sustainably - meaning low input use. Second, they have to access the supply-and-demand market to make extra gains. For some producers this market is necessary in order to make more profit by influencing the price/production costs ratio. The reason for this, given by some producers, is not necessarily because they want to make money by increasing prices and making people pay more, but because otherwise it is not possible to survive in business. A producer explained in the NWFS "if seven years ago I was selling a bunch of lettuce for one peso and now I am selling it for five pesos, is because before I used to pay 30 pesos for a load of organic fertilizer and now, I am paying 650 pesos for the same load*."*

The State market is the best option for some producers, even if prices are lower. Having certainty from the start who is buying their produce is the best way to avoid the uncertainties of selling at harvest time. "I sell to the State enterprise and the rest is for family consumption. I don't sell to the public. The cooperative collects produce and takes it to the enterprise. It is better that way, as they organise the transport. The State is the best buyer, they give you guarantees for your production from the start so that you can hire workers or buy animals." (Interviewee, PC6).

In both situations, their dependence on the market is due to: a) the requirement to meet the State target which included buying produce and selling within the State market. "Even if we are expected to use fewer inputs, we need some of them and they are not provided by 'Agriculture'". It is also not possible to import them. "You have a quota and that's it." commented a producer. b) to meet their remaining needs, the full costs of production, reinvest and build up savings. For some, market dependence to maintain their livelihood and meet their needs is exactly that, a way to maintain their business. For others the ambition is more towards growth and expansion, for example venturing into exporting agroecologically produced food.

The possibility of making profits or just keeping the business going is affected by several conditions. As explained before, there are differentials among food providers despite all having access to land and the network of national social services. For instance, differences in type of soil and land, having capital to pay for hired labour from the start, connection with networks and location of landholdings. The latter is key to be able to sell directly to the consumer within the supply-and-demand market, and for many of the research participants this is one of the benefits of having land in the suburban area as it gives them easy access to populations across rural, urban and suburban areas. This is the case for almost all *parceleros* and organoponics. A *parcelero* commented, "Some days I sell more than others but almost all the produce is sold. We are in a good position as it is on the road that joins the city and the nearby

town." (Interviewee, PS25). To be able to balance the price-cost ratio (by, for example, using local sources for transport, reducing external inputs through sustainable practices, cutting costs by using family labour or undertaking extra work) is not enough to make profits. Moreover, entering the supply-and-demand market put them into competition among themselves but also with intermediaries and with State enterprises who have more bargaining power but do not bear the risks of production in the same manner. Given this situation, the extra costs and time demanded from SAP producers to maintain sustainable production is not taken into consideration in the SAP's policy making. The programme put the responsibility on those who work the land, and demands sustainable production in a self-sufficient manner, although this is not reflected in the distribution strategy since all producers are treated equally. Under the centralised system, the channels used, and prices paid do not change in the case of integrated traditional and agroecologically produced food. Moreover, producers do not have access to key shops in which mostly imported food is sold at higher prices, for instance in the Collection Stores of Foreign Currency (TRDs).

In this context, producers' dependence on the market is buffered by the conditions of the socialist State, for instance not having to enter the land market and having access to land, water and other basic services as well as, for example, training. Producers in the SAP are not in full competition with, for example, State or private housing developers or land grabbing from international corporations. Having said that, there is the impact of the opening up to foreign investment for agricultural production, as in the case of the Mariel Development Zone, and the impact that it could have on SAP producers - for instance, overall competition in terms of scale and benefits provided by the government. In this regard, it should also be noted that although urban and suburban production exceeded the national annual targets on vegetables and fresh condiments (as presented in next FS Pillar), one of the sectors for foreign investors in the Mariel Development Zone is the production and marketing of vegetables both nationally and for export (Ministerio del Comercio Exterior y la Inversion Extranjera, 2015). A producer's comment illustrated this issue: "cheese production is an extra activity which is mainly done by my wife with the surplus milk production. We could produce more and have a business plan to expand production. It would be ideal to be able to set up a sales point near the *finca,* but we are near the Mariel Zone and not allowed to sell at the farm gate, so, we are taking our production to Havana." (Interviewee, PL13). The experience of this producer illustrates how access to key spaces is shaped by power relations and constructed through official regulations and, for instance, contacts (Pratley and Dodson, 2014). As another producer explained, relying on connections to sell produce creates further differentiation and demands as it is necessary to a establish niche for the produce (Interviewee, PL11). This niche market is often through the tourist industry. This leads to the issue of the insertion of agroecologically produced food

into the market without differentiation or support for production.

5.3.3.2 Distribution of agroecologically produced food

The national system to distribute food either through the State market or supply-and-demand makes no formal differentiation regarding the mode of production, whether agroecological, organic or conventional agriculture. An official managing agricultural fairs commented “in the process of commercialisation there is no differentiation between food produced agroecologically or otherwise. It is not possible to do it. Moreover, we need to have all types of production because although agroecological is ideal there is not enough to meet the demand.” (Interviewee, SG30). Another official commented when reflecting on the distribution of food that “urban agriculture is the only sector in which agrochemicals are banned and although in the overall suburban and family agriculture the aim is to produce in a sustainable manner, it is necessary to use fewer chemicals to reduce cost” (Interviewee, SG29).

Differentiation of produce is more down to relations and connections established in direct sales, for instance sales at *finca*-gate, organoponic, or producers who have entered the supply-and-demand market (Interviewee, PL11). Three producers explained that their customers appreciated their food because they trusted that it was free of chemicals. Although they had to transport it to *paladares* (or tourist restaurants) in Havana every week, it was a good market and demand was increasing. The element of trust in the distribution was also part of the culture built since the Special Period about urban agriculture being free of chemicals, “people know that we are producing food that is good” said an organoponic’s administrator. This reflects the point raised before about creating linkages and local development, but although the country has the necessary experience and culture, this seems not to permeate policy making.

The element of trust building and a way to brand agroecologically produced food was absent in the case of food distributed through intermediaries or the State agromarkets. All intermediaries interviewed had no knowledge about agroecology or whether the food they sold was produced without chemicals, the criteria most used to identify agroecological food. This is reflected in the comment of an attendant of a selling point when briefly explaining agroecology’s meaning. “I know that in the organoponics they cannot use chemicals, but I don’t know how the food I sell is produced. I received it from *Acopio* so I don’t know”. The situation is similar in a *Bodega* (the ration system shop) (Interviewee, DC6). A State enterprise’s transport organiser for an agricultural fair also mentioned that there is no segregation of agroecological food (Interviewee, SG31).

Looking at the State's distribution system, producers' concerns appear to be more to do with certain parts of it, such as the need to address problems with *Acopio*. However, instead of resolving these problems, the trend seems to be more towards reducing the State's regulatory system which if properly handed would give security to producers and non-producers. From the FS perspective the political demand is to have the State regulating the market, paradoxically the socialist Cuban policy trend is to hand over more power to the private market, while the State enters itself as an actor in the market and controls the market of imported food. The impact of this on producers and on the SAP's aim of sustainable production is critical, as differences among producers are exacerbated. Smaller producers who cannot access the private market in beneficial conditions (such as having the means and networks to distribute directly to the tourist industry or markets in major cities), or those who do not have enough surplus, could be marginalised and possibly put out of their livelihoods. This is key since land in usufruct is tied to State targets. From the point of view of non-producers, issues of wages/employment and their general purchasing and agency power is another set of problematics, which is explored in the FS Pillar 'Focussing on Food for People'.

Having explored the dynamics of the 'localising' of the SAP through the lenses of the distribution dimension of the food system the next section addresses the localisation of food processing through small-scale industries.

5.3.3.3 Small agroindustry: coupling agriculture and industry

The need to couple agricultural production and small-scale industry, rather than large industries, for sustainability and diversity of food production is a topic argued by most of the research participants from producers to government officials. This is captured by a producer as: "if you have only big industries, there is the need to have high levels of production throughout the year and that is not always possible. You cannot start up machines in big industries just to process small amounts which results in small producers losing two or three boxes of tomatoes or mangoes. But if you have small industries, they can cope with those small quantities that once added up, make a difference at a local level." (Interviewee, MIS2). Thus, small-scale industries enable producers to handle extra food production during the peak of the harvest, hence avoiding loses, diversifying production, and providing the population with a range of locally produced foods, while also generating income and employment.

The idea of small-scale industries is connected to closing cycles of production in a diversified and multifunctional manner, resonating with the concept of virtuous circles (Jones, Pimbert, Jiggins, 2011). As a coordinator of PIAL commented: "Small agroindustry is one way to add

value to production and to enhance local development. Before, the focus was only on one big industry. These days, each community must maximise their own resources. Small industry creates employment at different levels in agriculture, in the actual industry and its commercialisation. It is one way to create close cycles in local production and generate incomes." (Interviewee, SG3). Diversification means biodiversity (Perfecto, Vandemeer and Wright, 2009), diversity at species, ecosystem and at landscape level but also diversifying actors' participation in the industry, thus widening opportunities to generate income, rather than concentrating capital. This is reflected in the comment by a municipality officer: "One of the aims of the decentralisation process is to promote small-scale industry, and to ensure smaller losses when there are big harvests, each CCS has a small-industry. In addition, there are other independent and individual small industries" (SG30).

Closing cycles at *finca* and community level does not leave out the other angle discussed before regarding distribution, the long supply chain, or the interrelation between localities in the territory. This is because locally processed food also travels across rural, suburban, and urban areas. Rather than being in divided locations, the small-scale industries are the meeting point of produce coming from all areas within the municipality. Depending on their scale they might handle produce from only one or from several areas, e.g. an urban *cuentapropista* processed vinegar and juices in his house from products obtained only from suburban producers. A coordinator of a mini-industry said: "All the fruits processed in our mini-industry are supplied by members of our CCS. We produce tomato paste, vinegar, wine and juices which are sold locally in our municipality and in Havana city, plus the social quota*." (*Interviewee, MIS2). Other small-scale industries handle production from rural producers but processed it in suburban and/or urban areas. In this context, small-scale industries are the link between producers and non-producers through their distribution points in the case of production distributed locally. As a small-scale industry coordinator commented, their products not only feed the local community but are also sold in Havana. This confirms the point that small- and medium-scale producers not only localise food systems, but they also expand the concept of local towards other provinces, for instance food produced locally is distributed in Havana rather than food being imported. This reflects the points of the Malak-Rawlikowska *et al.*, (2019) study about the coexistence of long and short supply chains which, if well managed, can meet different expectations of sustainable distribution systems.

Amongst the small-scale industries, the notion of 'small-scale' is not fixed but varied, for instance depending on the volume of produce, technologies and number of workers. As in the case of independent individual-family mini-industries in which the work is done at home, and products sold by family members at home or as street vendors. Such workers are

cuentapropistas, one of whom explained that although his production was small, the demand was high and he sold all his produce every day, earning about 500CUP daily (1 $ at 24 CUP=$20.83). He thought that it was small but brought more income than being employed. Other units are managed as a cooperative with, for instance, ten or twelve workers (women and men) participating in the processing and distribution, as described by the administrator of a workers cooperative (Interviewee, MIS2).

Access to resources by small-scale producers presented in FS Pillar 'Valuing Food Providers', was more difficult in the case of small- and medium-scale food processors, as not everyone had the skills, investment capital or materials to produce machinery, and, unlike land, control of the machinery market is not decentralised or reformed to permit easy access. Technologies used in the producers' small-scale industries is artisanal and the machines self-made as there are restrictions on private producers buying or importing machinery. A producer explained that they have a quota to buy machinery, but it was not enough, therefore they had to innovate and create their own (Interviewee, MIC3). For instance, in Cienfuegos, four of the producers have developed their own equipment to process food and establish small processing plants for vegetables, fruit and meat, producing pickles, fruit juices, sugar cane juice, sausages, smoked meat and charcuterie.

"There is a lot of potential within small and medium producers to generate small agroindustry, which motivate us to create and invent things to be able to run our businesses", explained a producer. This illustrates some of the key characteristics of the SAP's providers, namely their mixed backgrounds in terms of skills and their shared attribute of having high levels of technical education which is transferred to their small industries. Their drive to innovate and create is facilitated by, for instance, their education as mechanics or electric engineers or other knowledge acquired in fields not directly related to agriculture or food production. In addition, "The government provided some grants to start up initiatives with the aim of coping with the surplus production that the State enterprise, *Acopio*, could not handle", explained a producer. "Moreover, since the CCSs were producing more food than other cooperatives, this was an efficient way to use the excess production of members of the cooperative and producers around the city, for example the spices produced by the suburban organoponico.*"* *(*Interviewee, PC16).

A government official in charge of promoting the State national programme for small agroindustry explained that small industries were thought to avoid food loses and to generate employment, with an emphasis on women. The locations built by the government for these small industries include provision for children and elderly people to encourage women to work

in this sector (Conversation during a municipal fair). A producer recalls that the origin of the small industries as a government initiative was during the Special Period, in the popular gastronomy (State restaurants for nationals). This aim of the government was reflected in the SAP's objective of linking small industry to the target of having 100 *finca*s with fruit trees which would provide the input for those industries (GNAUSF unpublished annual report of Havana's SAP in years 2017 and 2018 (GNAUSF, 2018)).

The debate around small versus large, and the issue of agency of actors regarding the coupling of agricultural production and food processing industries, was permeated by the general vision of the country's mixed approach to development strategy, explained in the FS Pillar 'Working with Nature'. On the one hand there is the request from producers to link and maximise resources through small-scale industries and on the other there is the perspective of maintaining large-scale industries without a clear strategy, creating contradictions and tension. This was reflected in comments by a producer about a major industry wanting to buy all the production from the small industries in the province. He argued that "All owners of small-industries were unhappy with the idea as it would be a loss to local development e.g. in terms of employment and the quality of the food. We started with a lot of work and made most of our own equipment, so now that it is working it would be a big loss, to just sell our produce to that big industry. They want to collect our produce and to put their name on it*"*. He added that "Our success exposes the fact that these types of industries are needed in the municipality, it is one way to close the chain of production at a local level maximising all local sources, thus reducing the need to import food, and at the same time making use of production that otherwise would be lost.*"* (Interviewee, MIS2).

5.3.4 Summary

This section discussed issues around the SAP's impact on 'Localising Food Systems' and how this is shaped by a flexible policy approach to wealth creation and meeting food needs nationally. This was evidenced by looking at the policy and leadership's narrative around the SAP's creation. There is the ambition to maximise production in land around cities and towns, to reduce transport costs and loses in agricultural production. This is also accompanied by a policy on decentralising to the municipalities and some of the State functions in the commercialisation process. However, although the policy is to reduce distance between production and distribution, in practice there is a dual approach to distribution, short and long-distance food supply, with food travelling from the suburban areas (and rural) towards big cities and between provinces.

In the centralised system producers are linked directly to national food procurement. This section showed that the SAP in this regard is not focused primarily on localising food systems in the sense of building community trust or embeddedness. Instead, as expressed by an official, the decentralisation of functions towards the municipalities appears more as the implementation of central policy directions than a real sense of devolving powers to decide on policy.

Following from the discussion on the issue of proximity or reducing distances in the SAP, this section touched on the insertion of the producers into the dual market system, the State and the supply-and-demand or private market. In line with the centralised commercialisation mechanism, producers are from start dependant of the market, firstly through the State's contract and secondly to be economically viable. While entering the private market they must enter into competition with the different producers regardless of their differences in form of production or capital. For instance, there is no differentiation between food produce under agroecological practices or under conventional agriculture.

The last part of this section discussed the role of small-scale industries in the coupling of agriculture and industry. This is seen both by officials and producers as a key factor for diversifying production, avoiding loses, generating incomes and enhancing local development. The SAP has two strands in this respect, one strand led by the government setting of small-scale local industries in each municipality to generate employment with emphasis on women, as expressed by a local official, and the other driven by small- and medium-scale food processors. Food processing is a clear path to maintaining local agricultural food production, processing, agricultural lose management, distribution, and consumption and in turn enhancing local development, as well as bringing the local to the national as expressed by a food processor (Interviewee, MIS2). The difficulty expressed by food processors is their lack of machinery and constrains to attaining that, as well as the decision-makers' mentality that "large is better", with the idea of centralising all local production within a big industry. The next FS Pillar connects issues debated in this section with the discussion about food security from the FS perspective.

5.4 FS Pillar Fourth: Focus on Food for People

Following from the discussion on the FS Pillar Three, 'Localising Food Systems', this section continues exploring relations between production and distribution, now linking them to food consumption through analysing the availability, accessibility, adequacy of food and the

people's agency to decide on their own food systems. Through these attributes, the FS Pillar 'Focuses on Food for People', explores the idea that FS is the precondition of food security (LVC, 1996 in Windfuhr and Jonsén, 2005), that food is not a commodity (Nyéléni, 2007) and the principle of socialist wealth distribution (Partido Comunista de Cuba, 2017b), by looking at how the SAP and its producers contribute to meet food needs in the Cuban socialist context.

5.4.1 Food Sovereignty as the precondition for food security

The concept of food security is understood as the "situation that exists when all people at all times have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life." (FAO, 2002). The structural, political and economic reasons that underpin this concept are crucial to understanding the implications of their adoption in the FS narrative (Fairbairn, 2011; Jarosz, 2014; McMichael, 2014). These reasons are captured in Marx's reflection about leaving capital responsible for the welfare of the population rather than public funding (Ollman, 1998). When the logic of capital is what determines the terms of meeting the fundamental need for nutritious, healthy and culturally appropriated food, without addressing distribution of wealth at all levels, food security without FS is politically and economically safe for reformist States (Aragui, 2000; McMichael and Schneider, 2011). It allows a channel for dismantling welfare system and leaving this to a voluntaristic approach or to the market.

The historical roots of the concept of food security, located within international para-State institutions such as the UN and the geopolitical power relations between nation-States and their impact on global food systems (Fairbairn, 2011), can be used as the lens to analyse its use in the FS Framework. It helps to understand the political critique of the neoliberal concept of food security - or food security via free trade (McMichael, 2014; Jarosz, 2014) by the FS advocates. This reflects the historicity, or the making, of both the food security concept and FS, as interconnected processes. The internal contradictions of the food security concept as a tool to control global markets through food aid (Fairbairn, 2011) gives way to the counteraction of the FS advocates. From a dialectical relational perspective, the resignification-capturing of the term food security within the narrative of FS can be understood as addressing the issue of food for people as an intrinsic human necessity (Kneen, 2009) that has been eroded through dispossession by dismantling of local livelihoods and national food production for people and capital accumulation in the free trade system. This is in contrast to food security as a solution to residual or tangential problems apparently inherent to free trade and to technological fixes in the agriculture sector, as proposed by the World Bank or the UN 21 Agenda (United Nations, 1992; World Bank, 2007). This contradictory but intrinsic relation

between the concept of food security and the construction of FS can be interpreted as an unnecessary dichotomy or an indication that there is not always clear differentiation between the terms (Claeys, 2009), while others argue that the relation between food security and FS varies according to geography and scale (Jarosz, 2014).

Bearing in mind these considerations, La Via Campesina reminds us of the key issue that FS is the precondition for genuine food security (LVC, 1996 in Windfuhr and Jonsén, 2005). Thus, food security may be understood and contextualised within the overall context of the framework of FS as a political manifesto and praxis in which the human-to-nature and human-to-human relationship is outside the commodification and alienation of the exploitative logic of capital generation. This restores the humanity-in-nature vision argued by Moore (2015) in the process of production and reproduction of nature and humanity. From this perspective, the division between producers and consumers/non-producers is deconstructed. It also debunks the myth of the market in which apparently everyone (producers and non-producers) is free to choose whatever food they want, or to sell their labour for the desired remuneration in the free market (Ollman, 1998). Another angle from which to reflect on food security within the FS is suggested by McMichael and Schneider as the "protection of peasant farming as a social and environmental necessity in promoting food security across the world" (2011:126). It puts the discussion beyond the issue of hunger and poverty as a residual problem, to a question of power to decide one's destiny and reformulate social-property relations and relationship with the source of wealth, the Earth. This perspective resonates with FS's emphasis on people's agency and autonomy to define their food and agriculture systems, expressed as:

> "The right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts those who produce, distribute, and consume food at the heart of food systems and policies rather than the demands of markets and corporations" (Nyéléni, 2007:9).

Agency therefore needs to be included as a prime attribute, alongside availability, accessibility and adequacy when assessing food security within the perspective of FS. These attributes are used now to explore how the SAP contributes to these within the framework of the Cuban socialist system to meet people's needs.

5.4.2 The agency of the Cuban socialist State to feed its population

Creating the means to feed Cubans as well as the right of all to access free education and health services have been priorities of the Cuban State since the Revolution, as stated in the

constitutions that preceded the current one (República de Cuba, 1992, 2019; Ministerio de Justicia, 2003). In this respect, although there was not total autonomy to decide how and what type of food was produced (considering the US blockade and the high impact of climate conditions in the country, especially during the hurricane season), the State took the decision to make food equally accessible for all Cubans. “With food security in the 1980s, we could eat everything, there was a diversity of foodstuffs and prices were accessible, everybody could buy food, but 80% of that food was imported and subsidized. There was food security, but there is the importance of being sovereign and not dependent”, explained a producer in the research’s National Workshop on Food Sovereignty (NWFS). Moreover, the historical lack of autonomy over food matters (considering the dependency on food from the Soviet Union), was contingent to the process of industrialisation and rural modernisation under the Marxist-Leninist socialist mode of production. However, this strategy was to reduce poverty and hunger, (Valdez-Paz, 2009) rather than to create dispossession as in the case of capitalist accumulation.

Under the socialist Socio-economic Model and principle of wealth distribution, the availability of food in Cuba is met through a range of strategies: national agricultural production, revenue from both export of goods and services and the tourist industry, food imports and humanitarian aid (Garcia-Alvarez, Tejeda-Gonzalez and Hernandez-Morales, 2014). However, the historical pattern of importing food was higher than national food production, as recognised by Raul Castro. In 2016 he stated that the food import bill was around 2 thousand million dollars (R. Castro, 2016)[54]. The strategy to reduce this bill (as well as other items related to agricultural production) was associated with the State administrative reforms in which SAP was officialised, including land redistribution, extending the scope of private markets, opening the space for self-employment, allocation of some responsibilities to municipalities for tax collection and linking production to small-scale food processing. Hence the SAP was created as a strategic element to enhance the country’s food availability. The Ministry of Agriculture stated: “The programme has as an aim to increase food production, import substitution, save combustibles and to maximize the window of opportunities that offer the granting of land in usufruct.” (MINAG-GNAUS, 2009). The SAP was expected to perform in the same manner as the Urban Agriculture Programme’s success in food production for the population throughout the entire year with minimal low inputs (Rodriguez-Nodals, 2014). “The suburban agricultural food production is based on the demand of the municipal population, this includes a daily 2,400 kcal/per capita, made of 460gr of vegetables and fruits, 462gr of tubers (*viandas*), 75gr of proteins and 100gr of grains” following FAO standards (MINAG-GNAUS, 2009:4). The SAP

[54] Fernandez *et al*. states that in 2013 the food import bill fluctuated around 40% (2018).

was also linked to supporting the Municipal Self-sufficiency Plan (*Plan Municipal de Autoabastecimiento)* according to the PCC proposal to update the Socio-economic Model in 2011 (Partido Comunista de Cuba, 2011:art 205). Alongside linking the SAP to this Municipal Self-sufficiency Plan, the PCC was proposing to eliminate the ration system, as stated by Raul Castro "to eliminate improper gratuities and excess in subsidies" (Castro, 2008). This, alongside the other reforms mentioned before, had considerable impact in the terms of how the population's food needs were to be met as a responsibility of the nation, as discussed below.

5.4.2.1 State administrative reforms and meeting people food's needs

The concept of the right to food or food security had not been included in the previous national constitutions (1976, 1992, 2003), however the priority to feed people was implemented through the leadership's commitment to ensuring universal social welfare and creation of jobs. These two aspects were set to be reformed in the updating of the Socio-economic Model. The Policy Guidelines confirmed Raul Castro's aim of "increasingly reduced subsidies and gratuities … and the products included in the food ration system (Partido Comunista de Cuba, 2017a:28); and to scaling down State workers and the creation of a law to regulate self-employment. Alongside these reforms, there was the proposal of the possibility of opening cooperatives in the non-agriculture sector as ways to create employment (Castro, 2016). Following the consultation for the updating of the Socio-economic Model, Raul Castro commented that although reducing "subsides and gratuities" was not appealing to people, it was necessary to take it forward in order to make the State more efficient by increasing employment outside the State sector (Castro, 2010). Contrastingly, alongside the reduction of subsidies, which included elimination of the ration system, the right to food and food security was enshrined in the new Constitution for the first time. It states in Article 77: "All people have the right to a healthy and adequate diet. The State creates conditions for food security of the entire population." (República de Cuba, 2019). Later in 2020, Cuban President Diaz-Canel commented on the progress in Cuban national policy related to food security and FS aligned with the FAO's Right to Food and food security. The nature of the institutionalisation of FS and its relation to food security was conveyed by the FAO as follows:

> "With the sponsorship of FAO, Cuba and the collaboration project 'Strengthening policies for sustainable food security in Cuba'…financed by the European Union, Cuba's Ministry of Agriculture launched the first call for legislating on Food Sovereignty and Nutrition Education in the country within the framework of the Plan for Food Security and Nutrition. For the first time, Cuba will have a legal framework to articulate efforts to work on the availability, access, stability and use of food." (FAO, 2020).

The actors involved in the preparation of this first legislation around FS are “central State administration, Higher Business Management Organizations, other entities, Cuban civil society organizations and the FAO.” (ibid). Legislating about food security, FS and nutrition appears somewhat contradictory. It is happening alongside the State reforms of dismantling the universal food system, job losses, and lack of direct investment in SAP producers who must be self-sufficient. Moreover, they have the responsibility to support the Municipal Self-sufficiency Programme. Regarding this, Raul Castro commented that eliminating gratuities was not in contradiction to the socialist principle, it was a matter of making the State more efficient (Castro, 2008, 2010). The focus was not on food for people as it would be argued in FS (Nyéléni, 2007) but to make the State more efficient, somewhat similar to the discourse of the World Bank and the UN Agenda 21 linking food security to trade while downsizing the State, and on the other hand relying on humanitarian aid. This reflects the priority of seeking foreign investors e.g. the Mariel (free trade) Zone with its focus on conventional agriculture (Castro, 2007; Ministry of Justice, 2013; National People’s Power Assembly, 2014; Cuban Government, 2015; Ministerio del Comercio Exterior y la Inversion Extranjera, 2015).

5.4.3 SAP’s producers’ contribution to food availability

The previous Pillar, ‘Localising Food Systems’, presented the point about the SAP being a strategy to generate capital as well as food, and this is evident when looking at SAP producers’ contribution to feeding people through their livelihoods. They are an important source of food consumed by Cubans as well as food that they could not eat often but which was geared toward the tourist industry e.g. beef. According to all producers participating in this research, apart from *patio* owners, they contribute to food availability of both fresh food, following State targets and to sell in the private market (as presented in Table 5.4.1), and processed food in the small-scale industries. Overall, and as a member of a cooperative explained (Interviewee, PC15), SAP’s production contributed to social feeding through provision of food to schools, ‘*circulos infantiles’,* hospitals, and homes for elderly and pregnant women which were the priority for the State’s social feeding programme. According to the USAFP in Cienfuegos, the urban and suburban programme reaches 37,895 people through social consumption (schools, hospitals, workers in State institutions) (GNAUSF, 2017a).

Table 5.4.1: Production priorities of SAP producers

Research Participants	Production under State contract	Excess production for sale	Not under State contract
CITY OF CIENFUEGOS			
Owned *Fincas*	Sweet potato, cocoyam (*malanga*), cassava, two varieties of plantain, fruits, citrus trees, red and black bean, beef, milk and pork.	Pork, poultry (chicken, ducks)	King grass, tithonia, mulberry, sugar cane, Colorado pinyon (these for animal feed)banana, lemon, mango, lime, orange, papaya, mamey, guava, avocado, melon, pineapple, tamarind, coco, pumpkin and maize.
UBPC	Varieties of vegetables and fresh spices.		
Organoponic-intensive garden	Varieties of vegetables and fresh spices.		
Patios	Mellipona bees		Mangoes, Papaya
SAN JOSE DE LAS LAJAS			
Owned *Fincas*	Beans, maize, cassava, green beans, pork	Cassava, pork	Yam, pumpkin, flowers, fruits, chickpeas, vegetables and beehives to sell among SAP members
UBPC	Beans, sorghum, maize, sweet potato		Vegetables, pumpkin
Organoponic-intensive garden	Varieties of vegetables and fresh spices, cassava and maize.		
State *finca*	Cassava, plantain, pumpkin	Cassava, plantain, pumpkin	
Parceleros			Cassava, plantain, vegetables, some fruits and flowers.
Patios			Fruits and bay leaves for national consumption.
HAVANA			
*Finca*s	Beef, goats' milk, pig meat, fruits, vegetables, beans, maize.	Fruits, vegetables, bean, maize	Honey and mellipona bees, fruits
UBPC	Goats milk, goat's meat, Plantain, fruits, vegetables.	Plantain, fruits, vegetables	
Organoponics	Varieties of vegetables and fresh spices.	Vegetables and fresh spices	Vegetables, pumpkin, milk
Organoponic-intensive garden	Varieties of vegetables and fresh condiments, organic fertilizer.	Vegetables and fresh spices, organic fertilizers, seedlings, ornamental plants.	Organic fertilizer (compost and humus), ornamental plants, young fruit and vegetables plants.
Parcela			Liquid fertilizer from vermicomposting and ornamental plants.

Source: Author

In addition, producers are urged to produce animal feed, as stated in one of the SAP subprogrammes. Animal feed is a key priority reflecting the importance of cattle raising, as shown in chapter 4. Cattle raising is tightly controlled by the State (every cow in the country must be registered) and beef is to meet the tourist industry and distributed only by State

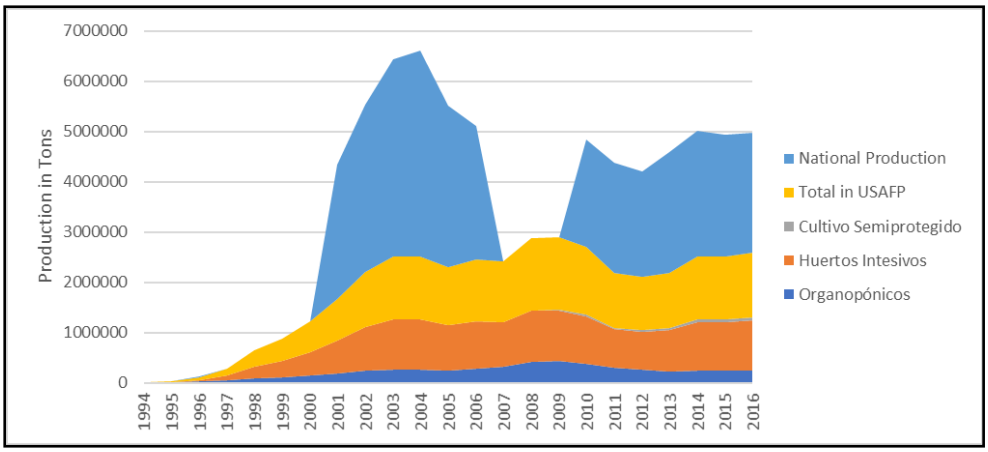
enterprises. The responsibility for meeting state targets and producers' performance is closely controlled. The performance of the producers in the programme is often reported in the national newspaper Granma (see Figure 5.4.1), with notes about which province is behind the national targets. "The production targets are set after doing an assessment of the needs of the population. Each territory has its own specifications. We have the responsibility to ensure that we meet the FAO nutritional values", explained a municipal representative (Interviewee, SG25).

Figure 5.4.1: Suburban Agriculture reported in national newspaper, Granma (June, 2017)

Disaggregated data on production in the *Polos Productivos* and other programmes such as the Urban, Suburban and Family agriculture is not presented in the national statistics, nor are differentials between rural, urban and suburban. According to unpublished data provided by the GNAUSF for this research, production of vegetables and spices from 1994 to 2016 in the overall USAFP programme has exceed targets every year. Comparing the combined production in urban and suburban agriculture with total national production, the USAFP was providing 54.18% of the total production in 2016 (see Figure 5.4.2). The efficiency of urban and suburban food production under agroecological methods reflects broader debates in FS

about the scale of food production and forms of organising it (Iles and Montenegro, 2013; Schiavoni, 2013). This research found two views on the matter: on one side officials and some producers reckoned that it was not possible to produce food only with agroecology, and on the other, some producers thought that it was possible to have enough production with agroecology or even that small-scale producers were outperforming State enterprises, as commented earlier. The evidence of SAP producers can be seen through another example of high performance, as highlighted by the president of a cooperative that focused on pig raising. He stated that his cooperative outperformed the pork production quotas that year and because of this they were selected the annual national champions (Interviewee, PC14). The producers of organoponics who were interviewed commented that their production continued throughout the year. They constantly produced vegetables, the variety depending on the season. They produced about 20 types of vegetables and fresh spices, and all had quotas for a variety of vegetables for the State's social feeding programme. Despite this research's limitations (as explained in the methodology) to finding out more about quantities of producer's outputs, the data from the GNAUSF, from the cooperative winning the prize of the best pork producer of the year, and from the organoponic producers' themselves, provides key evidence of the contribution of SAP producers to food availability in the country. Another perspective in the debate about efficiency of production is from the point of view of the multifunctional purpose of the SAP producers and their broader impact on diverse and sustainable food production. Since these producers, individually and/or in cooperatives, also contribute to ecosystem services through production of compost and vermicompost, it can be argued that they are contributing to reversing the metabolic soil depletion (Moore, 2000), through their multifunctional livelihoods.

Figure 5.4.2: National and USAFP production of vegetables and fresh spices from 1994 to 2016



Source: Prepared from unpublished data from GNAUSF (2017)

5.4.4 Accessibility through the ration system and the markets' unregulated price volatility

The common factor among research participants was access to the universal subsidised food rations. It was confirmed by all those interviewed in this research that "Every Cuban household has lunch and dinner. The ration card offers the minimum, things like beans and rice. Everybody receives that, no one goes to bed hungry in Cuba." (NWFS). Food could be also accessed through the canteens in workplaces and educational institutions; lunch and mid-morning drinks and bread can be purchased in the canteen with a subsidised ticket. For instance, the cost of lunch in a university canteen was 40 cents CUP (about 1cent US$) (Active Participation Notes). Alongside comments about the universal ration system, there was also the assertion that this was not enough, and they needed to buy extra amounts of the items received and others that were not covered in the ration; and 'food prices were in the clouds' as per the expression of several participants. All participants commented that they had to buy other foods, even in the case of producers, for instance rice, oil, milk or processed meat for those who did not rear animals. This shows some of the advantages for people who produce their own food, who have more access to, for instance, protein from small livestock (as cattle has to be hand in to the State) or pulses such as beans. It also indicates issues of differentials regarding how people access food that is not distributed through the food ration. That is, accessing food through, inter alia, their own production, purchasing power, solidarity of friends and relatives (e.g. international money transfers were often commented on (Active Participation Notes). In this regard, people commented that producing their own food was an advantage. As a group of producers in a cooperative commented, 'this is a rewarding job, in many ways, including the salary' (Interviewee, PC10).

The issue of low salaries was contrasted with the volatility of prices. Although Cubans benefit from subsidised housing, health, education, and the transport system, having to buy extra food and other necessary items means that they must have an income. This reflects the comments of participants in a focus group, which highlighted not only the need to buy items but also the fact that the ration system was reducing and eliminating items (for instance fish) and the existence of the Foreign Currency Stores (TRD) which accept only CUC, and the extreme contrast between subsidised prices and those in the TRD. Items such as rice cost 3.5 CUC (3 US$) per 500gr compared to 10 or 12 CUP (about 50cents US$) in agromarkets (Active Participation Notes).

In this situation, increasing wages and regulating prices was vital for people to be able to access food. However, although distribution was managed by the central planning system and

the State market (through its enterprises) and the supply-and-demand market was supposed to be following the prices set by the Ministry of Finance and Prices, in reality prices were out of control. Problems with the State market and the supply-and-demand market were exposed, with food price increases affecting both producers and consumers/non-producers. During the field work period of this research, the food price was an on-going and heated public polemic, with criticism of both the State system and the private markets. In this regard, a provincial government official commented that *"*The Ministry of Finance and Pricing sets prices for both the State market and the supply-and-demand sector. However, the supply-and-demand market has these only as a guide. There are not many controls on the latter, which has caused a lot of problems, so prices have been sky high and food hoarders are doing good business*"* (Interviewee, SG30).

The performance of the State enterprise, *Acopio,* and the need to restructure or completely dismantle it was a prime issue connected to the price volatility. This was due to its poor performance, which was exemplified by low finca gate prices, produce that was not collected properly and could be lost at the finca gate, and delayed payments to producers. Despite severe criticisms, the *Acopio* - which was at one point suspended - was repositioned within the set of measures in the updating of the Socio-economic Model. On the other hand, the supply-and-demand market was also exposed in the media (in a prime TV programme – Mesa Redonda), as prices skyrocketed with increased cases of speculation. The call was for strong State regulations over 'middlemen' and 'hoarders' as these had grown in presence and power. Producers were also blamed for the increase in their products' prices.

Structurally the problem relates to economic and political decisions that determine production and how producers and non-producers enter the market within the dual economic system and mixed approach to production in the Cuban Socio-economic Model. The problem at the core relates to the power of the State to shape the distribution of wealth (as per the socialist constitution), and how this function in the mixed economy is to an extent being hand over to the supply-and-demand market. The role of the proletariat State is to shape social-property relations, for instance determining access to resources, but equally important is how the distribution of wealth operates. This was expressed by a participant in the NWFS as follows: "Producers have to pay their workers a just wage, then they need to receive a just price for their produce, then a trader who is selling food in the neighbourhood has to sell it at a just price, so that he earns, and the population can afford to buy food. All of these are different but at the same time are the same thing. So, who is in the middle of all of this? The State. - which needs to regulate and make sure that people have enough food to eat".

This is the heart of the matter, as for instance, opening up space for the supply-and-demand market has created the apparent division of the State's political function from its economic one, akin to neoliberal States (Tilzey, 2018b). Thus, the setting of prices moves away from direct or centralised control and becomes more indirectly emergent from the collective results of the choices of many different actors, including the State. This is more in line with the liberal model style - a market in which the State is both an actor and a regulator in the logic of capital-State's nexus (ibid). Yet its regulatory function has been exposed with the rise in food prices.

In this situation, the SAP's production, which is supposed to be distributed locally, is interwoven with the whole problem, as it is inserted into the national distribution system. The issue of distribution is a bottle neck in which producers and the whole population meet under the mediation of the State planned system and the supply-and-demand market. Some national authors call for a socialist market approach in which the latter is regulated by the State (Nova-González, and Figueroa-Alfonso, 2018). Just how much this regulation, which should already exist, is resolving problems is a key question, even if the socialist market is to be the only approach. Nova-Gonzalez also argues that decentralisation is necessary to resolve problems with the State enterprise *Acopio* and that opening more spaces for supply-and-demand is part of the solution as well as being beneficial for intermediaries and the generation of employment at this level (2013).

Some producers confirm this view, in that they mentioned some benefits, as they can sell to some outlets in the tourist industry, albeit with restrictions on products such as beef and milk. However, most producers and non-producers interviewed aired concerns about intermediaries setting prices at will. It also appeared that increasing the number of outlets through supply-and-demand had not resolved the problem of *Acopio* nor of food distribution. Instead, it has created further issues for producers and consumers. In this respect, a producer recalled the time when they could bring their produce directly to the agromarkets: "It used to be better when we took the produce directly to the markets, now food has to be transported by the cooperative depot, then to *Acopio*, then to the agromarket and finally to the selling point. It is too much travelling." (Interviewee, PC5).

In this context, as discussed in a previous FS Pillar, the existence of a mechanism in which producers are directly connected to national food procurement which secures prices, rather than being subject to the vagaries of the market or the intermediaries, is a way to ensure protection of livelihoods and food provisioning with nationally produced food. This, however, requires a reconsideration of the commercialisation system and its relation to wealth creation and distribution, which in turn is a matter of the producer's power to decide and impact on

centralised decisions. In this respect, Nova-Gonzalez argues that the cost of imported food that can be produced nationally (beans, rice, sugar, milk) is high, while producers are paid low prices for the same items (2013). The latter point is confirmed by producers participating in this research who commented that they are paid low prices, as well as identifying price differences between food sold in agromarkets and shops that sell imported food. Reflecting on this example, the issue essentially refers to the mixed approach to agriculture and the 'saving investment strategy' discussed earlier in FS Pillars Two and Three. It relates to how food providers who are responsible for contributing to food availability are supported and incentivized and the existence of the market for capital accumulation in which producer and non-producers are inserted.

In this context, the solution to the problem is already in the hands of the socialist State even before considering market socialism or resolving problems by expanding the supply-and-demand market while allowing it to coexist with the central planning system.

5.4.5 Cultural and nutritional adequacy of food

As explained above, in the commercialisation system food produced by SAP producers was not differentiated from other food at the distribution and processing stages. The priority of having sustainable food production in the SAP programme was not followed through in terms of whether it was agroecological or not. In the centralised distribution and commercialisation systems, there was no mechanism to identify which product was produced on a sustainable basis. The only sector that was differentiated was production in organoponics which were banned from using agrochemicals. From this angle, it can be interpreted that increasing food production took priority over adequacy of produce, in terms of nutrition and environmental impact. This reflects the emphasis on reducing costs and increasing production in both low input and conventional agriculture. The policy making seems to have no interest in differentiating for instance levels of externalities caused by the latter and the nutritional adequacy of food for the population.

From the point of view of almost all the non-producers participating in this research, accessing food is not a matter of whether it is organic, agroecological or sustainably produced. The prime issue is to find it and to be able to pay for it, bearing in mind that the food ration is not enough. This is reflected in the response of a resident of Havana when asked about agroecological food: "I did not know until you explained me what that is, but finding food is not easy no matter what it is. When things are not 'lost', prices are in the clouds. Let's say papaya - if you find one that is not treated (ripened with chemicals) the price is seriously high, 25 pesos [1US$]! Not

possible." (Interviewee, CC2). Comments like this were not uncommon when discussing food in Havana and the City of Cienfuegos. The use of chemicals to ripen fruits faster was a reason for concern among everyone, including many of the distributors in the agromarkets visited in this research. In this respect, a staff member of a State enterprise commercialising food explained that they are very strict in dismissing treated food.

Regarding the nutritional aspect of food provisioning, the SAP has criteria to meet nutritional targets according to SISVAN: the national system to monitor nutrition among the population. Comments by participants, producers and non-producers in the research confirmed that they eat three meals a day, their standard diet being: Breakfast: coffee, plus one or more of sugar, bread, yogurt and sometimes eggs. Lunch: rice, beans, a starchy food such as yam plantain or cassava, any vegetable that is in season and eggs, when available. Dinner: protein, some form of processed meat (chicken or pork like sausage *(perrito*), mortadella and/or *empella* (fried pig's fat).

Some of the producers who raise animals such as pigs or rabbits mention that they eat pork more often than processed meat. Everyone mention that buying beef or sea food is out of question as it is expensive and sold for CUC, in TRDs and restaurants for tourists, but it is something that they miss in their diet. Milk or yogurt is also problematic, although people with health conditions and children receive this through the ration. Vegetables are included in the diet, when possible, in this respect a participant commented: "The food that I eat is our typical food, *viandas* (root and tubers), rice and beans. Vegetables were not common for us, they came with the Chinese people and became common with the organoponics and home gardens in the Special Period, nowadays we eat many of them depending on the time of the year." (Interviewee, CL19). Other participants also mention that some vegetables are expensive, but when bought in the organoponic they are fresher and cheaper than in the agromarket or from the *carretilleros*.

According to the variety of production of the SAP producers and contrasting with the diets of people interviewed, SAP producers match those diets on carbohydrates and vegetables. However, although they are responsible for producing animal protein - for instance milk and beef, consumption of the latter is not available to everyone. Having a variety of food is expressed as that, one eats according to what is available in the market at the time "Sometimes food gets lost [or disappeared from the sale] and you cannot find good fruits, or they have increased the price" (Interviewee, CL10). This reflects the comments of people during the field work, about the importance of the reliability and certainty of finding food (Active Participation Notes).

Mindful of use of resources, land and fishery industries, as discussed in chapter 4, a key question in terms of understanding SAP's contribution to food security is how much of national production should be used to meet the population's food needs or to generate capital (through exports or tourist industry) and how much of this capital should be reinvested in feeding the population or in national food production rather that importing food. This is seen from the FS point of view of focusing on food for people rather than on food as a commodity or 'through having the economic means'. In this respect, there is a contrast between what people said they were eating, the production of the SAP and priorities on land use. Considering the food that people like and eat, and what is produced, the findings of this research, do not differ from the study carried out in 1992 by Deere (1992) about the National Food Security Programme. In her study, Deere raised issues that are still valid. One of these is why production is not geared more purposefully towards producing the diet that Cubans like to eat. This is also reflected in the historical patterns of land use, as discussed in chapter 4. Deere raises the point of changing diets at that time of the Special Period, for instance replacing consumption of wheat and animal protein (bearing in mind the imports of animal feed and seafood) with beans which have high protein content. The responses of people participating in this research also shows that beans are a key part of their diet, and that protein is mainly consumed through processed foods, equally that more land is devoted to cattle raising and other export products than to producing other staples that meet the Cuban diet. This point serves to highlight the interrelation of availability, accessibility of healthy and culturally appropriate food and economic decisions that are 'distanced' from the people, which leads to the next attribute of food security from the FS perspective.

5.4.6 Consumers/Non-producers' agency to influence decision making

From the above point, deciding what to eat and the amount was not always a personal choice but a balancing of different variables, for instance what type was provided in the food ration, if other foods could be found in the markets and were there the resources to buy it or to produce it. Producers had more autonomy in deciding what to eat, because despite having restricted State targets to meet they could also complement their diet with extra production, for instance in the case of non-processed meat (from small livestock for those who had it). For non-producers interviewed in this research, decisions about what to eat involved being creative and mixing what was available (food ration and salary) and relying on solidarity from relatives and transfers, and/or through the black market (for example to eat meat, fish, or seafood). According to interviews, the way to resolve problems was primarily through the network of friends and family transfers, and the informal economy - for instance unregulated small-scale food processing (e.g. making cakes or sweets).

The existence of the SAP was not known to most of the research participants who were not involved directly or indirectly in agriculture. As far as this research revealed, there was no obvious means or channel through which non-producers and producers link, for instance through social forms of organisation. SAP's structure also had no links with non-producers, apart from its educational programme with young people for protection of the environment. The link between production and distribution, as well as the direct connection between producers and non-producers as individuals and their agency as a collective to impact on how food systems are shaped, is a critical aspect in the debate about FS globally (Robbins, 2015), not only in Cuba. The next FS Pillar Five, 'Putting Control Locally', directly addresses the issue of agency in the SAP.

5.4.7 Summary

This section has explored how the SAP contributes to meeting food needs in the Cuban population from the perspective of food security according to FS. It made the connection between food production, distribution and consumption in the SAP. First, it presented a general view of the Cuban official system for meeting the population's food needs. As such it discussed the institutional framework and policy reforms impacting how people access food. These reforms have seen changes in the Cuban universal food ration system. The introduction of the concept of food security and FS as a State-led initiative was highlighted, the latter through an FAO supported project, funded by the EU, which marks the first time that FS was debated or legislated for in policy making in the country.

This chapter then examined how the SAP contributed to the availability of food. This was demonstrated by highlighting some of the sectors, e.g. the production of vegetables where production targets have been met from 1994 until the time of the research. Food accessibility was discussed from the angle of markets and price volatility, a pressing problem for both producers and consumers/non-producers who must enter into the market to meet food needs, while also faced with reductions in the ration system. The final parts of this chapter described the diet of people participating in the research and the various types of food available to them. It highlighted the contrast between production priorities and what people eat, noting that for example protein intake is primarily consumed through beans and processed food. However, a high percentage of land is used for cattle rearing for tourist consumption and fish and seafood is primarily for the tourist industry and export. Regarding non-producers' power to decide about food matters, this is primarily down to individual coping mechanisms rather than collective organised action. The important element of people's agency is discussed in the next

FS Pillar, ‘Putting Control Locally’.

5.5 FS Pillar Five: Putting Control Locally

The research has already explored the SAP through four of the FS pillars. The first FS Pillar describes the overall world vision in which the FS edifice evolved. Building on this, the second Pillar narrows down the level of abstraction to explore how the SAP’s vision is embodied in human-to-human and human-to-nature relations. This entails understanding the attributes of the people involved in the SAP and the social-property relations that establish how the space (physical and social) is appropriated in terms of access to resources such as land, seeds and water. Expanding the scope again, the third FS Pillar, ‘Localising Food Systems’ and the fourth Pillar, ‘Focusing on Food for People’ have been used to explore the interconnection of different processes within the food system, and the context in which these processes take place. With the same expanded view, the fifth FS Pillar, ‘Putting Control Locally’, addressed in this section, connects these other Pillars by focusing on the field of governance.

Putting Control Locally explores the social relations defining the governance of food systems in time and space by all the social actors involved in FS. Thus, it addresses issues of decision-making and control over the territory (individual and collective) by the diversity of actors and mechanisms to build and transform food systems (Nyéléni, 2007). This Pillar relates to social-biophysical relations within the territory regardless of administrative or political divisions, such as how communities understand, mediate and conciliate their “common inhabitancy and use of territories” (Ibid). In a broad sense, this Pillar touches upon individual and collective processes and practices to build governance values and institutions and how this is achieved. Through the lenses of the ‘social being’ this demonstrates the Emergent Totality and Transformative Praxis which reassert and consolidate the ambition within the other planes of the ‘social being’, which have been explored in the previous FS Pillars.

Thus, this section explores a general understanding of the field of governance, the field of governance within the FS debate and the attributes of the field of governance pursued by FS advocates. Followed by an exploration of the SAP through these lenses on issues such as the type of governance regime in which the SAP evolves and identifying actors and their agency and how this is actualised or what is their political praxis.

5.5.1 The field of governance

The field of governance concerns “the complex art of steering multiple agencies, institutions,

and systems which are both operationally autonomous from one another and structurally coupled through various forms of reciprocal interdependence." (Jessop, 1999). It relates to the polity, ecological and socio-economic realms, and hence the social relations that shape values and institutions which control inter alia how wealth is produced and distributed. As such it deals with the production and reproduction of values, institutions, politics, and ideologies, bringing to the fore the relational aspect of the structure and the superstructure (Harnecker, 1969; Gramsci, 1971; Ollman, 2003) rather than an economic determinism (Harnecker, 1969). In its broadest sense, it relates to all spheres of life. It is the way people arrive at decisions that affect the community as a whole, pertaining to problems and forms of social management, in which the self and collective are interconnected (Bookchin, 1986). From another viewpoint, the field of governance can be interpreted as a "commons", understanding the latter as the fabric of social relations with which the collective gives meaning and shares spaces and resources both social and physical (De-Angelis, and Harvie, 2014), including the governance of the actual/empirical resources or management of them (Ostrom, 1990), but crucially it is the actual structural notion of governing one's self. Thus, it is argued here that governance is first and foremost the power to control self-existence, individual autonomy and hence to construct or shape collective autonomy (Bhaskar, 2008; Fanon, 2008). Following from this, it can be said that after the Earth, the field of governance is the second most important of the 'commons' which has been taken over by the concept of the State-civil society and its hegemonic apparatus, permeating individuals and groups, shaping individual and collective agency to control how they relate to Earth, thus consolidating a singular cosmovision. In this line of thinking, governance is intimately interdependent with society's worldview and whether social relations are based on master-slave power relations and alienation of the self, or on the transformation of the self in harmony with nature (Bhaskar, 2008).

The relational and ontological aspect of individual-collective and agency-structure (Jessop, 2005; Bhaskar, 2008) demands that attention be paid to the ontological form of governance, that is the governance of the being or the onto-kratos (understanding kratos in its etymological origin as the 'capacity to do things' or 'power' (Ober, 2007)), This is somewhat related to Esteva's concept of 'ontonomy' (for more on this see Esteva, 2001); also understanding the human-to-nature relationship in its embodied form (Haraway, 1988). This is because nature is fundamental for the existence of human beings, after all humans are made of earth elements (Ibid). From these ideas, philosophically speaking the field of governance belongs to everyone and no one at the same time, it cannot be owned or appropriated, much as human-nature ontological structure cannot be appropriated or owned by anyone. Having said this, the field of governance is often restricted to the collective ('demos') connotation, either within the remit of the State-civil society relationship (Gramsci, 1971) or in the community or commune and

some forms of non-Statist's governance, however with an emphasis on the 'selfhood' expressed in the community (Kropotkin, 1898; Bookchin, 1986).

This collective perspective of governance has been restricted to the concept of the nation-State. The State has been erected by society as a monolithic concept with a hegemonic prerogative (regardless of which class is in power) (Kropotkin, 1898; Lenin, 1966) to control governance. This leading to the control and exploitation of humans and the Earth, thus, creating artificial divisions within the territory and removing individual freedom and self-determination, in favour of national freedom and security. Moreover, the governance has often been in the hands of a male-leader or a vanguard party - regardless of it being representative, participatory or direct democracy - under a patriarchal system. Still within the State remit, attempts to build new governance systems with a counter-hegemonic approach have been repressed, co-opted or side-lined despite their support to left-wing party politics, for instance, social movements in Brazil, Bolivia and Ecuador (Henderson, 2017; Vergara-Camus and Kay, 2018; McKay, 2020)

There are also other perspectives from an anti-State and hierarchical governance stance, such as the anarchists collectives, for instance anarcho-syndicalists cooperatives in Catalonia, Basque Country and Cuba (Dolgoff, 1977), anti-systemic movements (Wallerstein, 2002; Gibson, 2019) and the experience of Indigenous communal forms of governance - some relying on a leader figure e.g. the elder of the clan-community and others within an armed stance against the State. For instance, in Chiapas-Mexico, The Zapatista Army of National Liberation (Ejército Zapatista de Liberación Nacional or EZLN) struggling for autonomous forms of governance within the nation-State (Vergara-Camus, 2014).

5.5.1.1 Debate about the attributes of the field of governance in food sovereignty

The governance issue in the FS framework has been asserted throughout its history since 1996, in the political stances, transnational gatherings and theoretical development of La Via Campesina and allies (Via Campesina, 1996; Nyéléni, 2007; La Via Campesina, 2008, 2017). Some of the FS's political stances regarding governance are captured in Figure 5.5.1.

Figure 5.5.1: Highlights of political stances on governance by LVC and allies

a) all peoples, nations and states are able to determine their own food producing systems and policies that provide every one of us with good quality, adequate, affordable healthy, and culturally appropriate food.
b) respect for local autonomy and governance with equal rights for women and men...where it guarantees the right to territory and self-determination for our peoples.
c) share our lands and territories peacefully and fairly among our peoples, be we peasants, indigenous peoples, artisanal fishers, pastoralists, or others.
d) puts providers and consumers at the centre of decision-making on food issues.
e) we must fight for governments to protect the rights of those who inhabit territories, such as through genuine comprehensive agrarian reform based on the diverse needs of peoples.
f) given that La Via Campesina is a heterogeneous space, the visions on the role of the State vary enormously in each different historical, political and cultural context.
g) the State should guarantee community control over natural resources by peasants, fisherfolk, pastoralist, and forest communities, and by indigenous peoples, so that they can continue to live and work in the countryside and on the coasts by means of collective and community rights.
h) we use the term 'democracy' even though we are aware that it is a term which (like other terms we have used) has been captured by international institutions; for us it highlights the concepts of people's power and participatory democracy.
i) we will assert food sovereignty and associated rights by utilising international legal instruments and pressuring governments to implement them.
j) the State, on the one hand, must guarantee human rights and intervene and pass laws that guarantee women's equality, for example, in matters of equal participation, land tenure and inheritance, social rights and a guaranteed violence-free existence… On the other hand, States are replicators of an unequal, patriarchal system.
k) the state has the task of promoting public policies, but we can't expect it to fulfil that task, because it's not in the interests of the elite.
l) the United Nations and related organizations will have to undergo a process of democratization to enable this to become a reality.
m) we need a redefinition on the role and the functioning of all international bodies.

Source: Prepared from (Via Campesina, 1996; Nyéléni, 2007; La Via Campesina, 2008, 2017)

The diversity of viewpoints manifest in the LVC political stances show the challenge but above all the window of opportunities at hand in the pursuit of building new paradigms of governance. In other words, being diverse and with multiple demands is a strength rather than a problem,

contra Bernstein critique (2013). It is argued here that the main challenge is not specifically the diversity of demands/angles but the fact that these stances are positioned and tied to one monopolising and uniformising frame, the State. Thus, the challenge lies in the following: 1. most of the thinking regards the State both as agent and structure, 2. other perspectives such as a non-Statis forms of governance (for instance in libertarian socialism and feminist thinking) have seldom been considered as a possibility that can accommodate FS's new governance paradigm, with some exceptions (Pimbert, 2009, 2018b, 2021), and 3. in this context, the State is directly linked with the notion of democracy, sometimes without a clear notion of the type of democracy. For instance, the differences between democracy in socialist States where there is the proletariat democracy and bourgeois liberal democracy in capitalist nation-States (Lenin, 1966), or different assertions within liberal democracy such as representative, participatory and direct democracy and forms of community democracy within Indigenous civilizations (de Sousa-Santos, 2010). Moreover, the generalisation of the concept of democracy is problematic, considering its value-laden nature (for a coherent objectivity to measure democracy see feminist thinker Sharon Crasnow (2020)).

The debate about governance in FS food systems - as in the conceptualisation of agroecology and in the general debate about the field of governance - has also been mainly framed within the notion of the nation-State. The State is seen as an entity from which governance emanates, emphasising its role in the transformation of food systems and overall social relations (Nyéléni, 2007; Trauger, Claeys and Desmarais, 2017). Bernstein (2013) put it as 'the elephant in the room' in FS debates and with reason, as the State is to an extent the ever-present entity, but at the same time existing in a nebulous space in which its function and content change inconsistently (Bernstein, 2013; Iles and Montenegro, 2013; Schiavoni, 2016). Moreover, there is a tendency to present the State versus society or civil society in a dichotomous setting, and/or confusing the State with government (Buttigieg, 1995) or equating the State with society, as if there is no society without the State (Kropotkin, 1898). In addition sometimes civil society has been artificially separated from the State, (Buttigieg, 1995), therefore alienated from its intrinsic relation to the field of governance. The reason for this can be attributed to the fact that analysis of the nature of the State has been neglected, for instance its historical precedents, the class-relational contradiction, its political and economic dimensions, its role in dominating and creating consent through education and division (Gramsci, 1971), even in socialist States (Dolgoff, 1977; Wallerstein, 2002) or as Fernandez points, assuming that State-less condition is synonymous of chaos (2001), or that agroecology and FS is suited to Statist forms of socialism, giving Cuba as an example (Bellamy-Foster, 2008; Rosset, 2009; Rosset and Altieri, 2017).

Thus, requiring the State to guarantee control over resources and protection of the rights of small-scale providers and consumers carries a fundamental contradiction. This is because the State is implicated in a class conflict which is fuelled by the control of governance field by one class, to the detriment of the very subjects struggling for FS and agroecology (Bernstein, 2013; Tilzey, 2018a; Vergara-Camus and Kay, 2018) or it is against the diversity of forms of governance advocated within FS in both capitalist and Marxist-Leninist socialist States. Drawing from Tilzey's (2018b) argument on the State-capital nexus, demanding transformation of governance patterns from the State as the guarantor is an oxymoron. Furthermore, separating the authoritative and economic powers, allocating one to the State and the other to civil society, neglects the fact that the State is not detached from society, it is a product of the social-property relations engendered within the so-called civil society in which FS posits the strength to demand from the State. This obscures the contradictions and differences in power between social actors within civil society, for instance the class and power differences between the private sector, NGOs, the scientific community, autonomous communities and poor disenfranchised landless or semi-proletarian peasants or poor non-producers. These actors develop unequal relations in the first place, relations that are magnified when consolidated in social structures such as hegemonic education or within the democratic voting system.

Other forms of governance which are still connected to the notion of State are for instance those from traditional Indigenous communities in Latin America embedded in the context of colonialism, mestizaje and opposition to nationalistic projects (Esteva, 2001; Vasco-Uribe, 2011; Gutiérrez, 2012; Rivera-Cusicanqui and Sousa-Santos, 2014). This approach has been embedded in proposals such as the *Buen Vivir* (Gudynas, 2009; Solon, 2014), yet with critiques because their links to patriarchy and essentialists perspectives. From another angle, other forms of governance that reject the State altogether, including the mainstreamed hierarchical socialist Statist perspective (Kropotkin, 1898; Dolgoff, 1972; Bookchin, 1986), are less pursued within the FS debate. However, in the failure of State centric initiatives e.g. reformist approach to the State (Wallerstein, 2002; Gibson, 2019), there are proposals looking into new governance systems, such as confederative democracy (Bookchin, 1990; Pimbert, 2021) and traditional Indigenous communities' systems. For others, the notion of not having the State (as the main holder of sovereignty for instance) poses a problem (Menser, 2018), or for others there is still a broad sense of the State power and the need to reinvent party politics, specifically left-wing parties, as Vergara-Camus reflect in the case of Latin American movements.

In this frame of ideas, social movements are often invoked as the legitimate social actor to

build new forms of governance, as presented below.

a) The role of social movements in building FS governance systems

Within the debate about FS, social movements are often given a unique role in creating alternative forms of governance for food systems and are championed as key forces for social change (Holt-Giménez and Shattuck, 2011). This is often envisioned within the Polanyian double-movement (Polanyi, 2001) and the corporate food regime (McMichael, 2009), as theoretical and analytical tools, thus change is still envisioned within the remits of the State. Moreover, the notion of social movement is often used generically without differentiation on political positions or strategies used and assumes that all social movements challenge master-slave social relations and practices (Garcia-Linera, 2001; della Porta, 2009; Henderson, 2017; Trauger, Claeys and Desmarais, 2017; Gibson, 2019). However, social movements (even movements advocating for FS) reflect society's social relations, therefore they also carry class conflicts and power differentials (Holt-Giménez and Shattuck, 2011; Henderson, 2017). This in turn reflects strategic positioning within the State hegemony (see more on strategic position in class relations in Gramsci (1971)) regarding reformist, radical or liberal changes of food systems, being counter-hegemonic and sub-hegemonic social movements, still operating within the State politics (Holt-Giménez and Shattuck, 2011; Vergara-Camus and Kay, 2018). That is whether it is as a reaction of the neoliberal logic, the liberal market self-regulatory position, or against the government's reformist (both by force and consensus) approach. Thus maintaining the State alongside with social forces to counteract the marketisation process (Polanyi, 2001).

When considering how actors interact in the State-civil society relationship and the historicity of FS as a process-in-progress and progress-in-process, it is relevant to acknowledge the processes of adoption and co-option of ideas as well as the internal governance dynamics of power, delegation and representation mimicking Statist and party politic forms of governance (Holt-Giménez and Shattuck, 2011; Levidow, Pimbert and Vanloqueren, 2014; Henderson, 2017; Vergara-Camus and Kay, 2018; McKay, 2020). Depending on the tactics and strategies of the individuals and social movements involved, it can mean either a subtle dismantling or direct criminalisation and repression of these (La Via Campesina, 2017; Passidomo and Van-Riper, 2017). The State can adopt outward oppression to counteract and repress social movements but at the same time use its hegemony to educate and/or create consensus (Escobar, 1995). This can be explicit in the adoption of FS and agroecology in governmental agricultural programmes or in State national constitutions in the form of technologies or in piecemeal legislation without structural transformation of governance practices (Henderson,

2017; McKay, 2020). This can occur even in cases of left-wing governments for instance in Latin America (Vergara-Camus and Kay, 2018). Studies based on the Polanyian double-movement and counting on the role of "oppositional forces" in capitalist nation-States and its application to socialist nation-States such as Cuba, deserve a closer look to avoid flat generalisations. This is key bearing in mind the meaning of social movement and/or autonomous individual forces in Cuba and their relationship with the government and the State. In this regard, some scholars argue for the 'state-supported model' in Cuba - in which farming communities and associations were given power. This is presented as the ideal scenario in which the Cuban people and its government link major aspects of FS (Menses, 2014). Regardless of whether this argument reflects reality, it leads the reflection into issues of State-led FS institutionalising and/or whether is this in line with the FS's anti-systemic proposal that some advocate and the actual praxis.

b) State-led FS: decentralisation and institutionalisation

Schiavone argues that "adoption of FS by States and the processes that ensue extends well beyond food and agriculture, getting to the very heart of questions of State-society interaction." 2016:3). From a relational-strategic point of view, transformation calls for a multifaceted and coherent strategy according to historical conditions, not merely an isolated or contradictory sum of elements (Ollman, 2003; Jessop, 2005). This also reflects crucially how new values and practices are embedded or grow organically in society (Pimbert, 2018a) or whether they become rules and/or rights without real meaning - having rights but without practical means to exert these rights (Kneen, 2009; Patel, 2011; Grey and Patel, 2014). This is the concern with demands for FS's State institutionalisation and the use of the rights discourse to access official spaces. These tactics more that transform realities, they reinforce and obscure structures that contribute to social domination (Henderson, 2017; Passidomo and Van-Riper, 2017; Vergara-Camus and Kay, 2017).

Another topic is the decentralisation of the State in the form of handing over its functions to NGOs, the private sector, philanthropic aid and the scientific community, assuming that they are independent from the State and the government. This is the State's hegemony operating in its role of building consent through education, bearing in mind the importance of these entities in localising, globalising and perpetuating views of reality which have local, national and global reach. This reflects the fact that regardless of whether the State is centralised or decentralised in capitalist or Statist socialist settings, its prerogative is to maintain its hegemony (Bookchin, 1986, 1990; Wallerstein, 2002). Therefore, efforts for institutionalisation and decentralisation (Fisher, 1998; Shneider, 2004) while arguing for self-emancipation and

tackling the contradictory and complex nature of the State-civil society and the competing notions of sovereignty (Schiavoni, 2016), can simply be a way of normalising the major contradictions, evident in crises or moments of change but without transforming the real domain of reality, only reforming the empirical domain to make it appear that there is change.

The balance between building self-governance that then impacts on collective forms, for instance on social movements, faces further challenges in cases in which national sovereignty and self-determination is threatened (e.g. in occupied Palestine or Cuba under the US blockade). How to balance demands and needs of individuals with the pressure of defending national sovereignty under such conditions? Here the tension between defending the collective and the individual in the terrain of power relations impacts on the role and perception of social movements, in their capacity to defend individual-group interests while maintaining the collective vision. Thus, it demands a critical praxis and critique of known forms of democracy, forms of decision making where responsibility and the power to transform reality is self-alienated through voting systems for democratically and participatory elected representatives. Otherwise, there is the risk that the Emergent Totality (institutions and social relations) in the 'social being' overshadows or takes over all other planes of the 'social being', thus restricting the Transformative Praxis.

Following the discussion above, the next section presents some premises that contribute to the reflection of the critical praxis of building food systems governance in line with some FS values and strategics themes for actions.

5.5.1.2 Constructing the field of governance in coherence with the FS values and strategic actions

The process of creating governance structures for FS food systems demands changes at the grassroots-individual level, and above all requires addressing the issue of delegating power to the 'demos' through the State and the myth that the latter is a neutral provider or regulator. In short, it is about tackling the State and global para-State structures as part of the problem and not the solution. From this last idea, some argue that freedom and sovereignty for all exist at the moment when the State ceases to exist, as it means that the contradiction of classes has ceased to exist, a situation which Marx, for instance, did not see as happening until society reaches communism[55] (1970) or the "regulated society" in Gramsci's terms (1971). However,

[55] Here it is key to differentiate nation-States led by communist political parties from those having a communist society. This confusion often applied to Cuba, which is a nation-State led by a communist political party in the construction of a Marxist-Leninist type of socialism and not a communist society.

from a critical dialectical perspective, the Marxist-Leninist theory that the State is needed in socialism and its eventual disappearance in communism, is an absolutist assertion that goes against the principle of ontological immanent contradiction and the notion of open-ended realities (Bhaskar, 2008), therefore the need for ongoing critical transformative praxis and rejection of all forms of domination persist.

It is argued here that the construction of the governance of food systems within the perspective of FS, demands a constant critical praxis in theory and practical strategies that take into consideration the social-nature relationship (or the stratification of the 'social being'). It involves reflection and action on structural premises - presented in Figure 5.5.2 - in the process of building autonomous self and collective governance that impinges on food systems and society. These premises are generic and historically determined, interrelated to each other and to the overall structure of governance.

Figure 5.5.2: Premises to reflect on in the construction of the new FS governance of food systems

1. Building self-governance and its link to the collective
This is when the FS terms 'local' and 'small-scale' gain meaning, as the seed of the 'social being'. This is when actors recognise themselves as agents (local) and at the same time as the structure (the society, the national, the global), from a strategic-relational perspective (Jessop, 2005). Therefore, taking control, not demanding to be given control, this 'localised' seed is the origins of the force that drives social movements and transformational changes with wider reach. In this sense, it is argued here that the praxis of the field of governance as a 'common' can be based on the principle of "the real needs and interests of the concrete singularity of each individual as a condition for the free flourishing of all" (Bhaskar, 2008:160). This envisages:
· The dissemination-planting of the FS worldview from early socialisation throughout all forms of education, emphasising popular education and farmer-to-farmer knowledge production.
· Upholding the rights of the Earth, learning to communicate with her elements and establishing harmony between nature's feminine and masculine aspects.
· Developing and researching into the diversity of ways to perceive and construct reality.
· Disseminating feminist philosophies and traditional cosmovisions to underpin education and research at all levels.
· Understanding and living with diversity of worldviews within the principle of difference-in-unity.
· Building power within, or individual power (kratos) or 'capacity to do things', rather than delegating power to the 'demos' which effectively is relying on the leadership/elite of the vanguard party of any type of liberal democracy or current socialist democracies. This effectively means developing each one as a leader and rejecting the cult of a leader or representation.
· Tackling the division between mental and practical work, and urban-led policy and administration.
2. The scale and scope of governance in food systems
From a historical and relational perspective, this is what some authors refer to as "the place and time-based sovereignties" (Iles and Montenegro, 2013; Schiavoni, 2016), which fundamentally recognise that FS is historically and contextually dependant and not a static or fixed formula. Thus, FS food systems and their governance take place simultaneously on different levels, individual, household, village, neighbourhoods, communities, Indigenous autonomous territory, clans, and tribes. Therefore, it means localising the debate, decision-making and implementation of decisions through locally formed bodies such as councils and federations from different spaces and interconnected to each other. This draws on Bookchin's reflection on anarchist ideas of "confederalism" within a framework of self-sustainability and interdependence, that is a "network of administrative councils whose members or delegates are elected from popular face-to-face democratic assemblies, in the various villages, towns, and even neighbourhoods of large cities" (Bookchin, 1990:7). This is a different conception of decentralised forms of governance from State decentralization or notions of autarchy or isolation (Ibid). Developing this localised and interrelated form of governance contributes to delinking local and regional spaces from the nation-State and para-State institutions structure - therefore building power at the same time of breaking down/dismantling centralised power and institutions. This localisation also relates to the links between industry and agriculture embedded in the fabric of the entire food system, both in the locality and connected to wider regions, (for more on this from an anarchist perspective see (Kropotkin, 1912)).

Reflection on scale and scope is grounded on the concept of territory (as a social-natural construct) and in a non-violent but non-compliant deconstruction of centralised administrative and political divisions of the territory within the nation-State, in order to align the governance of the territory to customary law and culture. At the heart of this is the reflection on property (whether communal, collective, or individual). At such it evidences the link between the economy and the polity embedded in a worldview when accessing-managing the 'commons' as social-relations. This relates for instance to the discussions about land and access to resources in the LVC popular agrarian reform proposal (La Via Campesina, 2016), or experiences such as the participatory budgeting in Porto Alegre - Brazil (Fung and Wright, 2001). Moreover, this points to understanding the differences and connections between policy, politics-ideology and the empirical administration-management of the 'commons'.
3. Ensuring and managing inclusion of everyone in the debate-discussion and decision-making
Focusing on and developing self-governance contributes to ensuring and managing inclusion to participate in debating collective issues, driven by individuals' own felt need to 'absent the absence' in Bhaskar's terms, rather than being 'mobilised' 'conscientized' or 'trained' by external actors, e.g. intellectuals, professional campaigners, politicians, power-seeking revolutionaries or by an vanguard party. Managing inclusion of all actors demands tackling diversity, not as a 'crosscutting issue', but as fundamental ontological and epistemological positioning, thereby unmasking, understanding, and owning power differences and embodied subjectivities and tackling gender equity (for more on this see feminist thinking in Haraway, (1988)). This includes reflecting on who are the 'intellectuals' and their role (Gramsci, 1971). Furthermore, inclusion is only attainable when time and resources (material and non-material) are available to effectively enable all to have the 'capacity to do things', in other words building 'onto-cracia', dismantling the concentration of power on one leader or group, or taking back the 'kratos', from the disembodied 'demos' to the embodied 'onto'.
4. Mechanics of the discussion-debate and decision-making
There are several strategies/tactics for the actual debate and decision-making which have been the result of actual experiences at different levels, articulated as face-to-face deep democracy (Bookchin, 1990), talking to each other, discussing around themes, learning to live with some trade-off rather that harmonious consensus" (Carlson and Chappell, 2015), participatory deliberative governance (Fung and Wright, 2001). *Forma multitud* - or flexible and territorial mode of unification [translation by author], or the integration of social actors without frontiers, as in the case of trade unions, based on discussion in assemblies, direct consultation and deliberation (Garcia-Linera, 2001). Other mechanism is what Pimbert calls open ended Citizens' Juries in which the voices of excluded actors are purposely part of the debate and amplified adopting a deliberative and inclusive approach (2022). Although these strategies have been used in State-centric movements and within the remit of the State, they are retrieved here as they encapsulate learnings on grassroots debate, movement building and social transformation, moving away from vanguard revolutionary parties or traditional hierarchical social movements and/or community organizing.
5. The praxis of manifesting decisions as an ongoing discussion-action process
This topic connects in a fluid manner with all the points mentioned above, in a constant return to the self. Therefore, as Wallerstein points out, it is not about winning power and then transforming the world but transforming it, in the doing (2002).This involves connecting discourse with action in the consuetudinary daily acts and through empirical and hands-on community or cooperative economic activities, such as mingas, non-violent and non-compliance direct actions to take back the material 'commons' (e.g. occupying land, housing, markets) through exercising the 'immaterial 'commons' of deliberating and decision-making (Gutiérrez, 2012). This is through building trust, cohesion and solidarity" during the collective doing, for instance the women's 'community pots' (*or ollas communitarias*) in the struggle against mining companies in Peru (Romero, 2017). A large-scale example of demonstrating the debate and the decision-making process in empirical terms is the Brazil's Landless Workers' Movement (*or Movimento dos Trabalhadores Rurais Sem Terra or MST*). Regarding the actual praxis of localised discussion and action process, it is pertinent to recall Bookchin reflection about confederalism, that is having a clear distinction between policymaking and the coordination and execution of adopted policies, and the use of rotatory schemes at all levels (1990).

The aspects dealt with above, namely the field of governance, the governance in the FS debate, and constructing new governance of food systems, are now used to explore governance in the SAP.

5.5.2 The Cuban one State-party and the proletariat democracy

FS's demands to or negotiations with the State for the granting or respecting of rights that guarantee or contribute to agroecology and FS, and the allocation of that demand-negotiation role to social movements, have different connotations in the case of the Marxist-Leninist socialist Cuban State and society. This situation relates to the social relations at the heart of

the State-civil society relationship and how economic and political functions are situated in the one-party system and the socialist centrally planned economy. As explained in Chapter 4, the Cuban socialist State is constitutionally granted power over economic and political matters, in other words these domains are constitutionally concentrated in the State defending the ruling class, the proletariat, which can be understood as what Lenin called 'the dictatorship of the proletariat' (1966). This grants to the State the legal and empirical means (e.g. ownership of most of the country's resources) and the hegemony to undertake reforms, for instance land redistributions associated with the official launching of SAP. On this basis, the top priority of the State is to maintain national sovereignty and develop the means of production to advance the socialist society (Partido Comunista de Cuba, 2017a, 2017b; Republica de Cuba, 2019). This perspective of sovereignty does not leave room for notions of individual FS or livelihood sovereignty (Patel, 2011; Tilzey, 2018b) e.g. small-scale food providers, or room for a different perspective regarding the State or forms of governance, as explained in chapter 4.

The above is presented as part of the Cuban State's role of protecting the social function of resources, for instance by preventing land markets and threats against the Revolution (República de Cuba, 2019). In this context, FS demands for control over the territory by small-scale producers or to decide how resources are used, are arguably not the top concern of the proletarian Cuban State, although small-scale food providers would be nominally a key part of the State ruling class. This contrasts with the fact that Cuban poor peasants were the ones who fought alongside the political and intellectual revolutionary leaders (Wolf, 1969; Nunez-Jimenez, 1982). Moreover, they were considered backward regarding the route to construction of the socialist society (Rojas, 1978).

A further issue in this context is what are the mechanisms for SAP food providers (with their differentials) and non-food providers to exert their agency to shape food systems within the Cuban proletariat democracy?[56] - for instance, power to decide access to and use of resources, and how wealth is distributed, crucial topics for the development of FS. Part of the answer is given by the process of popular consultation preceding the updating of the Cuban Socio-economic Model. From this consultation it can be assumed that the current policy that guides the agro-industrial sector, including the SAP, and some of the State reforms, were agreed by people during the debate in the 2010 Public Consultation and later ratification in the Congress, as publicly explained by Raul Castro (Castro, 2017). Therefore, in principle people participated in the consultation that would lead to the official agreement on, for instance,

[56] That is the situation in which the proletariat/peasant alliance within the PCC are the ruling party, with the peasants being led by the proletariat (Rojas, 1978).

redistribution of idle land, reduction of the ration system, and that the SAP should be self-sufficient and coexist with conventional agriculture. However, as evidenced in the previous FS Pillars, in fact these decisions were already being implemented before the consultation, as per Raul Castro's speech in Camaguey in 2007 and 2009 (Castro, 2008, 2009). Moreover, prior to this decision the Cuban congress (the democratic space for discussing policy) had not met for about 12 years, as explained in section 4.7.

The other way to answer the question above is by studying the SAP's official design, of how food providers participate in decision-making, which relates to the issue of whether the SAP is a governmental programme or a movement - and what type of movement - and the cooperatives' decision-making power in the overall policies and administration of food systems, points that are addressed in next section.

5.5.2.1 Governance in the State-led SAP, agroecology and food sovereignty

The creation of the SAP was an element of the leadership strategy to deal with a recurrent multifaceted crisis, aiming to make the agricultural sector more efficient and to reduce the food import bill and input substitution. These topics by default related to the functioning of the State both as capital generator and regulator, as confirmed by Raul Castro's original presentation of the need to make the State's bureaucracy effective, when he commented on the problems with productivity on land managed by State enterprises as well as the growing amount of idle land (Castro, 2009). The SAP is included in the PCC policy guidelines in 2011 as "the SAP should be self-sufficient, with a territorial focus and spread across the country" (Partido Comunista de Cuba, 2011:27).

In this institutionalisation of the SAP, the adoption of the term agroecology as a technological component is reflected in its use in the SAP Guidelines: "the use of biological controls for pest management" and "agroecological practices" (MINAG-GNAUS, 2009). As articulated by le-Coq *et al*. (2017) in a report of 8 case studies on agroecological policy making in Latin America and the Caribbean, including the Cuban case (Vazquez-Moreno, Marzin, and Gonzalez, 2017)), the insertion of agroecology in the policy-making connected with the creation of SAP can be characterised as a government led, individual programme approach. That is, agroecology is applied to the SAP as a tool or practices but not as a holistic approach to the entire national development strategy. Although the use of sustainable organic agriculture is previously institutionalised through the Urban Agriculture Programme and later the USAFP (and biological controls were used in the *Polos Productivos* since the 1970s), the term organic is now less used, and the term agroecology used instead. The rationale behind this is unclear

as per official documents. Moreover, the narrative of the policy does not refer to the term FS or connotations that might infer any association with it. Instead the concept associated with agroecology in the PCC and the SAP official documents is food security (MINAG-GNAUS, 2009; Partido Comunista de Cuba, 2011; República de Cuba, 2019). Similarly, the introduction of FS as a State-led policy under the auspices of the FAO and the EU, as explained in previous chapter, shows that this process is controlled by the leadership. Bearing this in mind, it can be argued that the State's hegemonic power is a problem for the actual participation of people in decision-making, whether in a capitalist or a Marxist-Leninist socialist State.

In this way, agroecology is also included (coexisting with other technologies) in the overall institutional network of State entities supporting the agricultural sector in its practical implementation. This reflects the mixed understanding of sustainability in the national plan, in which agroecology is not differentiated from other technologies, for instance in the practice of monoculture, use of agrochemicals or GMOs. For instance, the banning of agrochemicals in the UAP was not transmitted to the SAP, regardless of the inclusion of agroecology. Reviewing other policies and laws associated with the officialization of SAP and its implementation, e.g. land redistribution, decentralisation and *Tarea Vida* - an environmental protection programme - reveals that these do not use the term agroecology. The preferred terminology is 'maximising resources', 'low input', and 'reducing distances to reduce transport costs'.

The specific ways in which people participate in decision-making within the SAP can be further understood by exploring its structure and the notion of 'movement' that is officially associated with it, as follows.

5.5.2.2 The SAP: a movement or a governmental programme?

The urban, suburban and family agriculture programme, of which the SAP is a part, is named in official documents either as a movement[57] and/or as an agricultural programme[58]. The introductory statement of the USAFP guidelines refers to it as "The National Movement of Urban Suburban and Family Agriculture*"* in its opening paragraph, later it is called the "Programme of the Ministry of Agriculture, including urban agriculture and suburban agriculture" and in another section is named "Integral Programme*"* (GNAUSF, 2015). These connotations of USAFP as a movement and/or programme are presented throughout the

[57] "This is not just an agricultural programme, but a movement of people's food production enmeshed in our Cuban political and social system" was asserted by the GNAUS's director (direct conversation). The term 'movement' is used sometimes by authors and researchers in the country and the Ministry of Agriculture in the launching of SAP Guidelines (MINAG-GNAUS, 2009).
[58] As stated in the PCC Congress Guidelines and used by government officials or in the media.

entire USAFP Guidelines. The clarification of why it is named a movement is explained briefly in the section on “Precisions about the Movement of Reference” (see Figure 5.5.3), “The National Movement of Urban Suburban and Family Agriculture in Cuba represents a big number of producers (women and men) who constitute its productive base” (Ibid, 2015:141). Apart from this there is no other official document which refers to USAFP as a movement or that explains further the nature of the movement. As a programme under the direction of MINAG, its control and regulation follow the PCC’s strategic guidance. The USAFP as such has no political strategic decision-making independence, nor is it a membership movement. In this sense the notion of ‘movement’ differed from traditional social movements (for instance trade union movement) or to new social movements[59].

Figure 5.5.3: The USAFP evaluation and monitoring system: ‘The Movement of Reference’

The operationalization of all USAFP’s subprogrammes is followed up through the Programme’s monitoring and evaluation system, called the Movement of Reference. This refers to the mechanics of the evaluation and monitoring (e.g. indicators, number of visits, who undertakes them etc) to select the champions of the programme, “formed by the group of producers from USAFP in each geographical zone, who stand out in the development of different aspects of the programme and who apply the results of Science and Technology, also taking forward their own innovations. The Movement of Reference seeks to stimulate this type of producer who on many occasions become ‘Producer Leaders’ not only for their own geographical area but for the whole country” (GNAUSF, 2015). The evaluation system has a detailed mixture of quantitative and qualitative indicators applied at municipal and provincial level within all the subprogrammes in UAP, SAP and in patios and *parcelas* for the Family Agriculture component. Members of GNAUS, including provincial and municipal delegates of MINAG, representatives from institutions supporting SAP and UAP and producers who have been highly evaluated, are responsible for undertaking quarterly visits (*or recorridos*) to production units (individual producers, cooperatives and State enterprises) and municipal and provincial State entities providing support e.g. *Granjas Urbanas* . These visits have the purpose of evaluating and providing technical advice. Results of the evaluations are published in the USAFP’s quarterly bulletin that is distributed among USAPF local delegations and GNAUSF members. These bulletins describe successes and failures for both urban and suburban programmes. An overall note about the performance of UAP and SAP usually appears in the national newspaper Granma after the quarterly round of visits, highlighting municipalities and provinces who have performed well and those who did not.

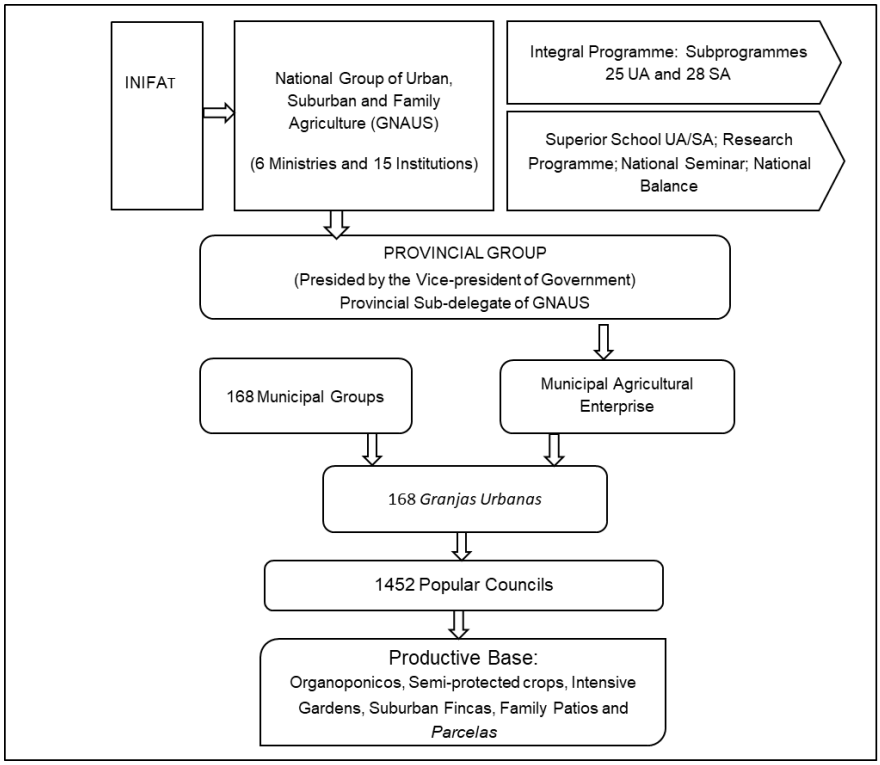
Source: (GNAUSF, 2015)

The naming of USAFP as a movement originally can be explained as the movement of people participating and organising themselves in solidarity and with mass organisations inter alia, the Cuban Women Federation in direct matters of food production in urban spaces during the Special Period, as explained in chapter 4. This was informally a movement that was institutionalised later as the movement of organoponics or organic urban agriculture. Having said this, the SAP was from start a State-created agricultural programme, under the requirements of administrative reforms that accompanied it. The overall strategic direction is

[59] “Social movements can be defined as informal networks based on common beliefs and solidarity, which mobilize on conflictual issues by frequent recurrence to various forms of protest” (della Porta *et al,* 2006 in Trauger, Claeys and Desmarais, 2017). “Social movements do not limit themselves to presenting demands to decision makers; they also more or less explicitly express a fundamental critique of conventional politics, thus shifting their endeavours from politics itself to meta-politics” (Offe 1985 in della Porta, 2009)).

under GNAUSF, responsible to the Ministry of Agriculture at central level, with the municipal administration making local decisions following the central general Guidelines. This is confirmed in its hierarchical governance structure as shown in the overall USAFP organigramme (see Figure 5.5.4).

Figure 5.5.4: Institutional structure of the USAFP



Source: (Companioni, Rodríguez-Nodals, and Sardiñas, 2017)

Moreover, although the term 'participatory' is used in the setting of the Guidelines this refers to specific layers of participation within the State's institutions. This is reflected in the way in which the Guidelines were produced "in a participatory manner in which all sectors, productive and non-productive, of the Ministry of Agriculture, provided their opinion" (MINAG-GNAUS, 2009:6). Participation of producers in the design and management of the SAP is not stated in the Guidelines or any other document. There are no indications regarding participation or involvement in SAP's decision-making of other sectors of the population, specifically non-producers, producers engaged in small-scale industries or entities engaged in inputs or food distribution, nor are there any monitoring indicators to assess producers' participation in decision-making or strengthening of producers' organisations. The issue highlighted in the Guidelines is that all the SAP subprogrammes should have a gendered approach (MINAG-GNAUS, 2009). However, the content of this approach is not described.

Taking the field of governance as part of the 'commons' rather than as the prerogative of the

State and the government per se, in the case of the Cuban socialist State the assumption is that the majority, the proletariat[60] and the peasantry included in it[61], has control over the field of governance, as opposed to the capitalist class in a capitalist setting. However, in practical and legal terms, participation by the population in decision-making is determined by the political party's leadership and its congress, representing the will of the population and protecting the social function of resources (Republica de Cuba, 2019). As such, the foundational premise is that the voice of the people (therefore food providers and non-producers) is represented by the State as the official guardian of public goods, or in other words the governance as a fundamental 'commons' is also under the State/leadership control. In this situation, some decentralisation of administrative functions takes place towards organizations such as ANAP, formed and named by the State/leadership as the voice of the peasants, or to the State controlled cooperatives, particularly by allocating the administration of decisions already taken by the leadership. This is evidenced in the implementation of the land redistribution in which ANAP first authorises cooperatives, and the latter coordinate individuals. Autonomous cooperatives or mutual aid societies such as those existing in the country prior to the Revolution in the anarcho-syndicalist style are not authorised.

Thus, the FS stance for devolved decision-making to small-scale producers - in the sense of a political demand based on liberal democracy, either participatory, representative or direct democracy - in which individual rights are upheld, contrast with the Cuban collective notion of property defended by the State in the name of the people, or in order words collectively. This helps to understand the political and ideological basis on which the term 'movement' is used in the SAP, as a hierarchical 'movement' including actors within the State-civil society structure all holding various degrees of power, in which the leadership, the PCC, has overall decision-making power. This meaning of 'movement' and its relation to the field of governance in a centralised one-party political structure and a participatory democracy as in the Cuban Marxist-Leninist socialism, helps to characterise the development of FS-Agroecology in Cuba. Moreover, it has bearings on understanding the differentiation of the Statist Marxist-Leninist

[60] The proletariat includes waged rural and urban workers in any economic sector (e.g. industry, agriculture and services) under State enterprises (regardless of them being mixed State-private enterprises or private enterprises) cooperatives and working for individuals (see section 4.7 in chapter 4). In this regard, there is no clarity about the new category of *cuentapropistas* or self-employed which for instance operates in the commercialisation of agricultural produce.

[61]According to official documents such as the National Constitution, the Land Redistribution Laws and Policy documents of the PCC, peasants (or *campesinos*, *guajiros* or producers) are the class led by the proletariat.
The *campesino* term is used in official documents and by all research participants, to name members of a cooperative (individuals working on land in usufruct and *finca* owners), private independent *campesinos* (*patio* owners, *parceleros*, day-labourers), and workers in State enterprises/*fincas* and cooperatives. From this, the following can be considered as proletariat, that is as waged rural or urban worker, workers of State enterprises, State *fincas*, cooperatives (UPBC, CCA and CCSs) and workers of individual-private *campesinos*, for instance day-labourers.

socialism currently existing in the country and other paths to socialism such as anarcho-syndicalism. This in turn shows that connecting socialism to agroecology, or FS to an undifferentiated notion of socialism, is misleading. On the other hand, it creates space for further critical analysis of which type of governance is fertile for the development of FS-Agroecology and how to build new paths to socialism. This critical analysis is taken forward while analysing the State administrative reforms related to the SAP, in the next section.

5.5.2.3 State administrative reforms and their impact on producers and non-producers' decision-making

Having a State with the capacity to take forward land redistribution without too many State's bureaucratic hurdles or major class struggles can in theory be attributed to different factors. In Cuba this is primarily associated with having a one-party proletariat State, controlling both political and economic domains, that in principle meets the constitutional task of protecting the public good (República de Cuba, 2019). However, this also means that processes of change are also controlled and geared to centralised holding of political and economic power (Fernández, 2001). Moreover, decisions can also be reversed by the same power, when the leadership considers it necessary (as stated in the Land Redistribution Laws). This in effect reflects tensions between intra State actors, that is within civil society at all levels. As Raul Castro expressed about the State problems "there are discrepancies but there is no need to be afraid of them in a society like ours in which by essence antagonic contradiction does not exist, because it is not the social class that forms it" (2009). It can be said on this basis that tensions and contradictions within the State-civil society (Schiavoni, 2016) and the relations between agency and structure (Jessop, 2005) are not resolved only with a State-led reform even if the reform is land redistribution.

The Cuban hierarchical socialist form of governance to an extent reflects the tension and contradiction in the FS governance demands. This is the tension between positioning the State as the general holder of power to change, transform, regulate or mediate between social actors (e.g. as the rights guarantor), demanding control over the territory and diversity of governance structures for small-scale food providers and their communities, and, on the other hand, the State (led by an authoritative leader) having ultimate control over the territory and decision-making. This tension exists in the Cuban State with its own nuances. In capitalist settings it is often resolved by reformist decentralisation of decision-making down to the local authorities and by an apparent separation of the political and economic domains as in neoliberal capitalist States (Shneider, 2004) with a resulting impact in terms of capital accumulation and conflicts of interest between the ruling class and other intra State class

fractions, as for instance in Bolivia and Ecuador (Henderson, 2015; Tilzey, 2018a; McKay, 2020). This separation is less apparent in the Cuban State, nevertheless it exists, through the State's involvement in capital generation and accumulation and promotion of the new private enterprises, expressed in the PCC National Development Plan (Partido Comunista de Cuba, 2017b), with the difference that the distribution of wealth is nominally biased towards the "'people' [or *el pueblo*], where the sovereignty of the socialist nation lies" (República de Cuba, 2019).

In this frame of thinking, administrative reforms and the laws and policies accompanying the official launch of the SAP are presented as a step towards 'updating' the State's functions to make it more efficient (Castro, 2009; Partido Comunista de Cuba, 2017b). This is a key aspect since it is not a restructuring of the State in its central political or economic policies but only decentralising some of the functions regarding implementation of central policies, as explained in the third FS Pillar in relation to the pilot scheme of decentralising some of the commercialisation functions in three provinces. Moreover, importantly from a FS perspective, the decentralisation did not include a change in the producers or non-producers' participatory channels already existing at municipal level or how people could use them. This means that there is no decision-making power granted to small-scale producers, cooperatives or consumers as a result of the decentralisation scheme. The decentralisation of some commercialisation roles to the municipal level is only towards local authorities. There is no mention in the Policy Guidelines in this respect (Partido Comunista de Cuba, 2017b) of opening channels for producers to participate in decision-making apart from those already used, for example the Popular Consultation on the updating of the Socio-economic Model. In this context, the administrative reforms bring changes that impact on producers in the areas of expansion of the supply-and-demand market and localisation of tax revenue collection, as municipalities are expected to generate their own revenue by taxing the new entrepreneurs (self-employed people such as the intermediaries in the supply-and-demand market), small-scale industries, cooperatives and independent producers such as those in the SAP. This change was made without the State having to allocate financial resources to the new entrepreneurs or the SAP producers as they have to be self-sufficient (MINAG-GNAUS, 2009). This type of decentralisation, handing down the administration or implementation of already adopted central policies without building local channels for effective participation in policymaking, is in fact not different from reformist decentralisation in capitalist States. This type of decentralisation brings to the fore a key premise warned by Bookchin's call for an anti-State libertarian confederative form of governance (which also refers to decentralisation), that is the need of having clear understanding and differentiation between policy-making and administrative process and these with plans defining the actual implementation; and above all

the need to couple decentralisation with real face-to-face participatory democracy and an emphasis on local self-sufficient interconnected communities (1990).

Having explored the field of governance from the perspective of the official narrative, the following section presents the views of participants regarding their actual participation in the SAP decision-making, whether at individual or collective level.

5.5.3 Freedom and the regulator role of the Cuban socialist State

"To be free to choose the food that you want" or "freedom" are two expressions often used by research participants when referring to FS. In practical terms, the issue of freedom to decide on issues directly affecting their livelihoods and self-existence was generally presented by producers in the terms of "being able to decide what was best for one's *finca*" or, in relation to the amount of land being granted through land redistribution, "it is not enough to have land, you need to have the knowledge and autonomy to decide what is best to be able to put the land into production and not be pushed to use certain products." (Interviewee, PC13). On the other hand, freedom to decide is combined with the belief that "the State is the one that should be regulating excesses or problems", as expressed by some research participants when discussing the issue of price volatility.

The duality of desiring freedom while demanding that the State step in to grant rights and mediate, argued by Cuban producers, is not unlike the point of view of some advocates of FS in capitalist States as discussed in section 5.5.1.2 above. In this respect, the State is seen by producers as a neutral entity able to tackle problems with the emergent private commercialisation of agricultural produce, although in the Cuban case it is explicit that the State still controls both political and economic domains, not giving place to a totally insulated economic realm (Tilsey, 2018b). This poses the question, what are the governance structures needed for the State to exercise the regulator role and for direct participation of the 'proletariat', and more specifically small-scale producers, to regulate the regulator. Although this topic is to an extent present in discussions about FS and the role of the State to regulate prices and speculators for instance, there was no clear view of how this regulation would take place, among the research participants. There is however the perception that there is some sort of conflict between some actors (including producers) gaining at expense of the rest of the population, and that whoever has most agency within the State-civil society structure is the one gaining most.

On this last point, if assertions are correct that there is no social classes or class struggle in

Cuba, as stated by officials and Raul Castro in the debate on whether the land redistributions in 1994 and 2008 are simply that or are agrarian reforms, this would effectively mean a Stateless society (Lenin, 1966). However, the Cuban State exerts the power of the ruling class, to tackle capitalist tendencies (as in the campaign against capitalist tendencies (Deere, 1992; Valdez-Paz, 2009)). This confirms that the regulatory power of the Cuban socialist State is not class neutral (just as it is not neutral in a capitalist State). Moreover, there are differences among producers in terms of their capacity/ability to access resources, as explained in the second FS Pillar 'Valuing food Providers' in section 5.2 and their insertion into the dual market system. These differences affect producers' power to influence governance and to transform social relations. In this respect, it is worth highlighting that having access to land is the first step but it needs to be accompanied by the power to decide the pace and manner in which the land will be used, as argued by the producers, which to some degree echoes the FS's stance on popular agrarian reform (La Via Campesina, 2016).

Furthermore, a critical question is, can FS be possible in Cuba under the US blockade? The impact of this on economic matters has been documented elsewhere (Davalos-Fernandez, 2012) as well as argued by research participants in discussion about the meaning of FS. It also creates sensitivity about discussing political aspects of reality that could create polarised views, both anti or pro-Revolution (Interviewees, SG17, SG3). Moreover, to understand social actors' agency in Cuban food systems' governance, it is key to highlight that food and agriculture are matters of national security, in view of the politics of the blockade and biological warfare that have taken place against Cuba's agricultural sector, as argued by one of the research participants (Interviewee, SG3). The impact of the blockade in polarising and restricting debate on the political nature of almost everything in Cuba was expressed on several occasions by both producers and non-producers. Moreover, the pressure of the blockade gets entangled with the leadership's ideological authoritative stand and the need to prevent imperialist advances as well as capitalist tendencies (among individual producers and entrepreneurs) (Castro, 2009, 2016), while also allowing decision-making on direct matters of production and markets towards capital accumulation.

These are the political aspects of FS-agroecology, that are often neglected when focusing primarily on agroecology as a technological tool. This leads to the point about the intrinsic political nature of agroecology and FS and its association with social movements, thus relating to the earlier discussion about the SAP being a 'movement' or a programme, and what are the channels to exert individual and collective agency for change.

5.5.3.1 The SAP producers and social movements

The research participants refer to the SAP as "the programme", or '*La Agricultura'*. There is no sense of the SAP being a collective organisation or movement addressing social issues, needs or even technological issues for food providers (whether *campesino/as* or small-scale food processors). This reflects the argument that "urban and suburban agriculture was a movement when it started; what you have now is a governmental programme" (Interviewee, PL14). In this respect most producers are also explicit that their relation to service cooperatives (CCSs) or UBPCs and State enterprises (Basic Unit Enterprise-UEB and *Granja Urbana*) is primarily for acquiring inputs, some services and trainings and support with food distribution.

The SAP is established as a programme under the Ministry of Agriculture, and therefore it is not an independent body nor a membership entity. However, the character of movement associated with the SAP is described by a member of the GNAUS as: the SAP having connections with research and education institutions, non-governmental organisations and government officials at various levels. In this network of relations, the role of ANAP stands out as this is formally (under the State structure) the voice of the small-scale *campesino/as* - additionally it is a member of La Via Campesina. Moreover, as a producer member of ANAP commented, ANAP's adoption of the *Campesino*-to-*Campesino* methodology of traditional farming peasant and indigenous movements in Central America (which in Cuba became the *Movimiento Agroecologico Campesino-a-Campesino*), has helped to spread the concept of 'agroecological movement'. In addition, ANAP being the national association of *campesino/as*, USAFP producers will be represented by it, if they are ANAP members. In this respect, some of the producers mentioned that they are affiliated to ANAP but not all the research producers are (19 producers out of 67 were not members), particularly small-scale producers (holding land of less than 2has), independent landowners and independent food processors. For the latter there is no known social organization representing them. Additionally, the notion of 'movement' is not extended to non-producers or consumers. This reflects the point that agroecology is often only associated with farming production, and other dimensions of food systems were not touched upon by most research participants. The voice of non-producers is delegated to or represented by the State. This comment is based on the researcher's active participation and informal conversations with non-producers.

The level of dialogue and power holding is not equal between the different State-civil society actors in the notion of 'movement' associated with the SAP by one of its coordinators. This is not only a reflection of the hierarchy and level of formal authority behind the actors (e.g.

producers, representatives of Ministries, national and international non-governmental organisations), but importantly because of the different producer perceptions of some of the other actors listed in the network. Some perceived the latter as State providers of inputs and services which are not always in their reach, for others they are possible connections to help develop their livelihoods (for instance by informal and occasional training and favours (e.g. visits to *fincas*, testing of manure in laboratories, trainings or sharing seeds). For the few producers-researchers who had been influential in the organic movement for years, these organisations are channels to get across ideas, share knowledge and to an extent lobby and educate government officials (Interviewees, SG37-40). The network of national institutions is a channel to promote and educate on their vision of agroecology, sometimes through ad hoc activities and sometimes with targeted ideas or actions e.g. publications, discussions and trainings (Active Participation Notes). However, above all, for most producers, these institutions are the authority.

5.5.4 Summary

This chapter has analysed firstly the field of governance and how this is debated within the FS framework. It was argued that the challenges to achieving FS's vision of governance, both at individual and collective level, are related to the State - understanding its oppressive nature and dismantling it. It was explained that in the logic of framing the debate about FS's forms of governance within the remit of the State, other forms of governance such as non-Statist and communal forms have been less explored. It also discussed the role of social movements and State-led FS decentralisation and institutionalisation. In this respect it was argued that as they are included within the State apparatus, they are more likely to be counterproductive in attempts to effectively transform food systems' governance. Following this, a set of premises were presented to aid reflection on issues pertinent to the construction of the FS field of governance (Figure 5.5.2).

The topics above were then used to explore the field of governance of the SAP embedded in the Cuban socialist governance system. According to the analysis in the Cuban official narrative, the field of governance is controlled by the State-leadership as the ultimate guardian of the public good as per the Cuba socialist constitution (República de Cuba, 2019). Evidence from official documents shows that the one-party State, heavily relying on the leadership, has centralised control of the economic and political domains, and its main priority is to build national sovereignty. The FS's political stance calling for small-scale food providers' right to decide and build governance is beyond the Cuban State's priority. Moreover, the concept of the proletariat in practical terms means that ultimate decisions about food systems in the

country, are taken by the leadership of the PCC, as the guardian of the public good and representing the people. It is the prerogative of the leadership to call or not for congress debate or consultation. In this respect, the SAP was connected to State-led reforms and formed as a programme under the responsibility of the Ministry of Agriculture, rather than a grassroots or social movement led initiative. In the same way, agroecology and FS were institutionalised through reforms and policymaking led by the leadership, the latter jointly with the FAO and EU support.

The chapter, then analysed the view of participants regarding the SAP structure and how they effectively impact food systems. From the comments of participants engaged in food production and non-producers it was evident that there was no channel to effectively participate in decision making, nor there was knowledge of the SAP among non-producers. Regarding the notion of 'movement' to which the SAP was associated by the Cuban official narrative, the findings of the research showed that the use of the term 'movement' is related to a hierarchical network of institutions in which the SAP is embedded. This contrasted with the view of the research participants who saw the SAP as a programme of the Ministry of Agriculture, as a provider of inputs and source of authority. The role of producers within this network of institutions is primarily related to the overall USAPF's, monitoring and evaluation system in which, some of them participate as disseminators of knowledge and experience.

This point leads into the topic of how the SAP supports or develops knowledge production and how knowledge production relates to building self-governance. This is analysed in the next FS Pillar, 'Building Knowledge and Skills'.

5.6 FS Pillar Six: Building Knowledge and Skills

This FS Pillar is expressed as the "building on the knowledge and skills of food providers and their local organisations" (Nyéléni, 2007). Together with the first Pillar which presents the FS vision, it forms the philosophical elements that underpin and propel the entire FS framework. This is because knowledge production and its praxis drive the creation and recreation of a world vision, a defining trait of individual and collective identity (Geertz, 1973; de Sousa-Santos, 2012). Thus, knowledge production can both assert and create identity, in as far as it is part of the socialisation and transmission of values, beliefs, and symbolic and material practices embedded in language (Geertz, 1973). The FS assertion that it 'builds on the knowledge of food providers' implies that food providers do have knowledge already. Moreover, just as there is a diversity of food providers and cultures there is also a diversity of knowledge (Nyéléni, 2007). Thus, underlying FS ontological premise is acknowledging the

existence of food providers, not just as economic/productive subjects, but “social beings” (Bhaskar, 2008) - with agency to govern themselves and to participate in the governance of the collective and its relationship with nature. In this sense, having knowledge can be understood as also necessarily having the power to make decisions, in order to overcome master-slave relations.

Analysis of the theoretical basis for exploration of this Pillar is presented in chapter 2, in the conceptualisation of agroecology and its relation to FS. This chapter focuses now on exploration of the SAP through the following aspects: a) the SAP’s official narrative of knowledge production structure; and b) food providers’ agency within the State-civil society relationship to effect change as epistemic subjects.

5.6.1 The SAP’s official path to knowledge: science and technology

The most recent Cuban Constitution states in article 21: “The State promotes the advance of science, technology, and innovation as indispensable elements of economic and social development.” (Republica de Cuba, 2019:3). Positioning science and technology as the basis for growth and building a modern vision of socialist society supports the PCC’s historical and ideological position that traditional peasant agriculture was backward and limited the development of production (Rojas, 1978; Nunez-Jimenez, 1982). This led to the ideological “non-existence” of the peasantry within Marxist-Leninist socialism in Cuba - or what Sousa-Santos defines in sociological terms as when “certain entity is discredited and considered invisible, non-intelligible or discardable” (de Sousa-Santos, 2012:52). Although the State claimed to respect small-scale private (or *campesino/as*) production, it was stigmatised as backward and non-socialist (Rojas, 1978), therefore undesirable. Hence *campesino/as* and their mode of production were targeted for transformation into modernity. They were put in an epistemological relation of subalternity with the Western reductionist scientific paradigm under State command-and-control - this within the political alliance of proletarian-*campesino* stated in the debate on the agrarian question (Rojas, 1978). The *campesino* class became recipients of scientific knowledge, politically educated, and led by the proletariat. This premise is vital to contextualise the SAP’s development and training plan for producers, how agroecology is embedded in this, and how it can be explored through the FS lenses of focusing on and valuing “the skills and local knowledge of food providers and their local organisations” (Nyéléni, 2007).

Consistent with the aim of using science and technology to transform rural development, the Cuban leadership developed agricultural infrastructure and human resources as reflected in the country’s 37 institutions focused on agriculture and agroindustry. This is in line with the

mixed approach to agricultural development that includes research, education, innovation, and learning, ranging from biological controls and bioproducts to production of GMOs. This development of scientific and technological approaches is re-stated in the Policy Guidelines and National Development Plan ratified in 2017 with the updating of the Socio-economic Model. It is also encapsulated in the SAP's subprogramme of science, technology, and environment. The SAP's training plan is based on the "Extension Service System of urban agriculture which includes the training and assimilation of scientific and technological advances in the productive base. Most of the scientific institutions working in agriculture participate in the creation of the SAP training plan" (MINAG-GNAUS, 2009:20). The SAP, like all Cuba's agricultural programmes, is connected to some of the 37 institutions supporting agroindustry through training and provision of inputs and services (e.g. biological controls/fertilizers, seeds, agrochemicals, technical services) and about 8 cross-sectoral (informal education/service provision) national NGOs supporting the agricultural sector.

The transfer of scientific knowledge and technology to producers includes a mix of practices and technologies. Although not directly presented in the SAP Guidelines, the SAP's provincial training plans (in the three research sites), plus provincial SAP reports, all reveal three forms of passing on knowledge and technology to producers, namely direct transfer of technology (ToT), producers training visits and campesino-to-campesino trainings, sometimes mixed depending on the technology/practices and the entity delivering/accompanying the activity. These three approaches are also applied differently according to whether the recipients are municipal *Fincas Integrales* or producers (independent, cooperatives or State enterprises). ToT is implemented through formal and informal training (by professional researchers and technicians) to technicians and staff managing the *Fincas Integrales*. These *fincas* also oversee technology transfer from research institutions to producers, and development/management of municipal seed research/storage/distribution and the centre for production of biological controls in connection with national research institutions (GNAUSF, 2015). ToT for individual *fincas* (independent *campesino/as* or members of cooperatives or State enterprises) is organised through scientists in situ research experiments and State-led extension services, e.g. the Cathedra on Urban and Suburban agriculture in the Provincial Schools of MINAG and training from research and education institutions. The producers' training visits model is part of the SAP's monitoring and evaluation system 'Movement of Excellence' (explained in the FS Pillar Five), transmitting a mixture of knowledge, techniques and learning. Visits are both an opportunity to evaluate and train producers, and to select the best producers or 'champions', who then serve as examples for others (MINAG-GNAUS, 2009). In this model of training, producers' active production of knowledge and innovation may take place, although they do not appear in the list of actors participating in the preparation of

trainings. In rural areas, the Campesino-to-Campesino[62] model of knowledge production/exchange is run by ANAP, with whom the SAP interacts.

Overall, these models of knowledge production and transmission focus on technological aspects. Although the SAP is a multipurpose programme, including, commercialisation and food processing, there are no activities focusing on, for example, the economic viability of livelihoods, ways to develop/strengthen relations between producers and non-producers or the ecological and economic implications of small-scale industries coupled with agricultural production for local development. Considering the PCC's focus on developing technological sovereignty, the subprogrammes on small industries do not have a relevant emphasis on developing knowledge and technologies appropriate to ecologically friendly food production and processing. The related performance indicator instead is "to promote training and exchange between producers to gain experience and to foster use of local resources and small-scale machinery" (MINAG-GNAUS, 2009:34).

An area of the SAP's knowledge production and transmission which includes non-technical issues is community engagement to foster values around protection of the environment and training on environmental regulations. This is the subprogramme on environmental protection, designed to educate youth and children in 'Circles of Interests' (MINAG-GNAUS, 2009), also used to teach the youth about agriculture, and to urge municipal SAP delegations to prepare their Participatory Environmental Assessments with specific action for climate change mitigation and adaptation. In addition, the SAP Guidelines includes a general objective focused on "recovering of knowledge, cultures and local agrarian innovation, its recording, exchange and dissemination*"* (ibid:21). However, in the SAP's plans for the three provinces researched, the only specific relevant objective is: "the need to recover traditional species, for instance fruit trees and some animal breeds" (MINAG, 2017c, 2017b, 2017e). This was the only reference to recovering local knowledge or its dissemination.

In this context, the FS focus on fostering small-scale food providers' engagement in decision-making is absent in the SAP's official documents. The SAP Guidelines, quarterly reports and USAFP official handbook have no indicators on issues such as participation in decision-making or building the knowledge of local producers' organisations (GNAUSF, 2015). Equally, there is no mention of how the programme built the 'movement', as it was sometimes called by GNAUSF. Training on participation, gender, popular education and building entrepreneurial skills are areas covered by NGOs' projects from which SAP producers could benefit.

[62] For a detailed description of this model see Machi-Sosa *et al*. (2013).

Producers' development and/or enhancement of skills on decision-making within the SAP, as a mechanism to promote embeddedness and transmission of knowledge, is a key aspect to bear in mind, considering that the programme is dealing with a mix of knowledge production backgrounds namely both producers' knowledge and science.

The official investment in research and development as outlined in the vision of 'prosperous and sustainable development through science and technology', is presented in the PCC narrative in two ways (Partido Comunista de Cuba, 2017b). The first is the general tendency to amalgamate industrially oriented agriculture and ecologically friendly agriculture in terms of institutional support, for instance in relation to all the research and development institutions and policy frameworks in the country. This however does not mean that all institutions are interested or investing in agroecology and/or organic agriculture and less in research about traditional knowledge systems, apart from entities such as the PIAL programme, funded by international agencies, which developed an important programme on participatory plant breeding, where scientists and *campesino/as* worked together during the Special Period (Rios-Labrada, 2016). That programme is still running (Ortiz *et al*., 2016), but its relationship to the SAP was not always evident among most of the producers participating in this research. Investment provided to the SAP is presented as "the investment of the overall education and human development of the country which means that there is a qualified workforce and teachers" (MINAG-GNAUS, 2009). (This research was not authorised to identify and compare the levels of investment on research focusing on industrialised agriculture and on sustainable agriculture.)

The focus of the PCC's investment is expressed more explicitly in another way, namely in, the PCC's documents, which are targeted towards technological and scientific advancement. Moreover, financial investment in agroindustry would go to the most efficient areas. On the other hand, as mentioned in FS Pillars One and Two, the SAP should promote input substitution, self-sufficiency, and local resource use. Although it can be assumed that investment on specifically agroecological research is not an official priority, this area can attract international funding from international entities[63] for specific initiatives (the research identified funding from the World Food Programme, the Japanese Embassy and international aid agencies all supporting agroecology development). This generalist institutional approach to supporting the agricultural sector, including the sustainable element creates the impression that all sectors are supported with the same investment or emphasis. However, the SAP was created to be developed under self-sufficiency, as emphasised across PCC documents. The

[63] Fernandez *et al*. review of funding for agroecology from international sources confirms this point (2018).

generalist approach allows opportunities for co-option of independent ecologically friendly research without actual investment and the inclusion of the latter within mainstream knowledge production models as ‘practices’ or ‘tools’, mixed with other approaches.

5.6.1.1 Agroecology and knowledge production in the SAP

Agroecology is included in the description of the SAP’s training subprogramme alongside the scientific and technological knowledge that is transmitted by institutions working on agriculture. The SAP’s main objective referred to this as ‘agroecological pest management’ and ‘agroecological methods and technologies’ to achieve ‘diversified and sustainable exploitation’. Agroecological Pest Management is itself one of the SAP subprogrammes, described primarily as “the use of agronomic practices and biological products to maintain healthy soil and plants” (MINAG-GNAUS, 2009:28-29). Hence agroecology is linked by default with scientific knowledge, consistent with the logic crosscutting the SAP’s training subprogramme. For example, all three provincial programmes mention agroecology only in their pest management programmes, whose description includes agronomic, agroecological and organic practices.

Contrasting the use of the term ‘agroecology’ with the term ‘organic’ which was more common in the UAP narrative until the 2000s, the use of ‘organic’ has changed. In the SAP Guidelines, the emphasis is on agroecology, with ‘organic’ being used in the indicators of performance (MINAG-GNAUS, 2009). This may reflect the pragmatic and flexible management of institutional memory and how policies can change over time without full explanation to support their implementation. This in turn can hinder how practices and knowledge are sustained in time, a key issue in understanding, for example, the degree of continuity in the success of the organic movement during the Special Period. On the other hand, this flexible institutional memory can be taken as a pragmatic way to purposely frame narratives that are later institutionalised, thus creating historical institutional memory from a particular ideological and political position. This is demonstrated by how the introduction of agroecology has been credited to the UAP and in this case to Raul Castro, rendering invisible for instance the ongoing independent research on organic agriculture, the grassroots growers’ movement and the contribution of permaculture, or *Permacultura Criolla* (Cruz-Hernandez, 2006) with its emphasis on the spiritual aspect regarding the relation with the Earth, developed by the Nunez-Jimenez Foundation (Caraway, 2018). The SAP Guidelines emphasise throughout the role of Raul Castro in the creation of organoponics and the UAP (MINAG-GNAUS, 2009). This resonates with the institutionalisation of the grassroots urban growers’ movement, in which what were primarily *parceleros*, patio owners or suburban independent *fincas,* became the

organoponic movement (organoponics being mainly managed by State enterprises) and later a programme (rather than a movement) under the Ministry of Agriculture, as explained in chapter 4. In Gramsci's terms, this process can be part of building hegemony through enhancing the leader's public profile (1971), as Raul Castro is often referred to as the father of urban agriculture in Cuba. Although there is no doubt that he is a supporter of urban and suburban agriculture, the point here is that this construction of narratives has further implications in terms of acknowledging the existence of social actors, their agency and above all how a movement or practice is sustained or not and/or changes depending on government reforms or leadership changes[64].

According to the official narrative, agroecology in the SAP is part of the strategy to substitute inputs within the sustainable development approach in two ways - as a tool for self-sufficient (low input) agriculture among *campesino/as*, and as a transfer of technologies and practices within the network of institutions and programmes which include the SAP. This network or the 'movement' can be described as a State-civil society informal and formal relation-partnership between institutions, that provides resources, training, or technical advice, in which producers participate as diffusers of technology as well as to promote their 'experiences'. 'Experience' is the term often used in official narratives and in the SAP Guidelines when referring to *campesino/*as production of knowledge (Castro, 2009; MINAG-GNAUS, 2009). Agroecology in this context is effectively connected to science and professionals, since biological controls are produced and provided by the CREES and trainings by extension service technicians. This is understandable, as the introduction of agroecology into the country has been through training courses provided by researchers engaged in agroecology's conceptualisation at the global level, where the emphasis was on technologies and practices, as explained in chapter 4. Hence the concept of agroecology introduced into Cuba was not presented as part of the FS framework.

5.6.2 The agency of food providers and knowledge production

"Despite the loss of knowledge in all these years of industrialised agriculture, traditional knowledge is still among *campesino*s, this knowledge is mostly in rural family farming… the inclusion of family farming, which is mostly undertaken in rural *fincas,* is a way to link their high performance and knowledge to the urban and suburban agricultural programmes." (Interviewee, PL11). Producers in suburban areas who are accessing land in usufruct are

[64] Regarding this, a researcher who was interviewed commented that "it is difficult to change, as some (*cuadros*) or government officials want to go back to the same old use of agrochemicals and monoculture, it is what they know." (Interviewee, SG33).

integrating traditional knowledge from rural producers and the legacy of urban agriculture. Hence, as commented by a researcher at INCA (Interviewee, SG15), the SAP's *campesino/as* are combining traditional knowledge and practices of the peasantry with the introduction of new scientific developments and *campesino/as* experiments.

The degree to which producers in the SAP have built on traditional knowledge and/or science can be determined first by the power of the State-civil society hegemonic apparatus to create consent around the mainstream model of knowledge, and secondly by the agency of producers to navigate within it. This is reflected in the characteristics of the social form of "non-existence" (de Sousa-Santos, 2012:52), carrying the traits of the negated identity, and the creation of a new identity, the latter being a process of knowledge creation embedded in contestation and/or resistance to the negation (Fanon, 1963; Freire, 1996), within a dialectical contradiction.

The first aspect, the science model as a hegemonic factor, is evident in the fact that the convenors of the SAP and the designers of the training plan are representatives of scientific institutions, ministries, ANAP and NGOs, with no direct participation of producers (MINAG-GNAUS, 2009). The convenors and designers of the SAP were also part of the 'Movement of Excellence' that selected the 'champions'. Moreover, the mainstream knowledge of production incorporates traits of the Campesino-to-Campesino method. This incorporation is, however, dependent on the approach of those participating in the training visits (whether technicians, researchers, officials or producers). Although there is a strong leaning towards scientific knowledge, some researchers and producers are instigating and promoting traditional and *campesino* methods of producing knowledge, albeit in what appear strategic but subtle ways. (Active Participation Notes).

The role of researchers and NGOs (national and international) in creating consent about the scientific model of knowledge production and the endurance of traditional knowledge, is evident through field work discussions with the key actors in agroecological knowledge production in the 3 study sites. While acknowledging that agroecology has connections with agriculture - as previously traditionally practiced by *campesinos/a*s, the emphasis is on the work of researchers and national organisations who are linked to the organic agriculture developed in urban agriculture. This view is commonly held by researchers, government officials and some producers, e.g. most researchers interviewed highlight the scientific advances achieved in agroecology in Cuba and that it is fundamental to pass on this knowledge to producers to maximise its potential (Interviews SG16, SG17). This view mirrors how, internationally, some authors and scientists emphasise the need to train small-scale

producers in science-based agroecological knowledge as discussed in chapter 2, in the conceptualisation of agroecology internationally. The role of institutions and their knowledge is highlighted as an important asset to be maximized in order to advance agroecological production. “The challenge for Cuban science is to incorporate traditional peasant culture, which was efficient, to make it more efficient. We have more than enough scientists, but how many go to help *campesinos?*” (National Workshop on Food Sovereignty NWFS). “There is need for local systems of accompaniment and technical services appropriate to sustainable agriculture on an agroecological basis, with services of technical assistance, training, equipment and inputs put into the hands of the people who received the land” (Interviewee, SG33). The association of agroecology with technical production issues is confirmed by another researcher who also argues that agroecological knowledge is mainly held by academics and extension services who are primarily focusing on the technological aspects of farming.

The second aspect of how producers navigate the State-civil society hegemonic apparatus is demonstrated by how producers accommodate and adjust to policy changes on decisions related to land access and inputs such as seeds, biological controls and/or agrochemicals. This is done, for instance, by pragmatically deciding to belong to a cooperative or a State enterprise to access inputs (in the case of *parceleros* with a definitive right to use land), and by maximizing their transferable skills (acquired in other professions and through formal education) and social contacts to experiment, travel and share with other producers - all in solidarity as often expressed by many producers. They also show their creativity and resourcefulness in accessing networks to use the power of science to pursue their innovations or to obtain resources. These points are reflected in producers’ comments about how they learn new developments about agriculture and food processing or how they are supported. Some have direct access to institutions that provide them with training, whilst others have sporadic access through friends or other connections. The latter is mainly the case for independent *parceleros*, individuals cultivating patios and some small landholders. Some do not have formal technical advice or training from any institution but had managed to attend one-off workshops with NGOs and/or had received some technical advice from individual researchers at various times. One producer commented “I like to learn new things and keep experimenting, so I search for other producers and go around to try to find things in the institutions. Through university researchers I knew about the ‘bichitos’ and sometimes they help to find some for me.” (Interviewee, PS2).

The role of cooperatives, State enterprises and ANAP in knowledge production and transmission is fundamental for SAP producers. However, this depends on whether the

producers are affiliated to them, for instance to ANAP, as not all of them are. Producers interviewed who are affiliated with cooperatives (CCSs and UBPCs), *Granjas Urbanas*, UEBs (State enterprise) or with ANAP are more likely to have access to trainings and exchanges of knowledge with other producers. The regularity of these depends on the entities organising workshops or training sessions, the most regular being the cooperatives and State enterprises, as they must follow production schedules. The most common theme in trainings is technical advice on pest control by "*Sanidad vegetal*" (National Institute of Plant Health). Improving soil fertility and productivity are common topics for trainings organised by cooperatives, using producers' exchanges and technicians from national NGOs. A cooperative producer comments "We have monthly meetings and there is always space in that day for training and exchanging experiences among us." (Interviewee, PC21). Other producers who are associated with a CCS mention that they have received some training but would like to have more. A group of organoponic and intensive garden producers who are associated with a UEB, explain: "we meet every month with the UEB, in these meetings we discuss problems that we might have with the organoponic (like needing a tractor or repairing the water system) -and how production is going. The UEB's director needs to know our problems, so they can help us to resolve them when they can. We also report in writing on the production for the month*"*. (Interviewee, PC9) The administrator of another organoponico says: "The UEB runs some training on biological control and agrotechnical issues*"* (Interviewee, PC17).

The emphasis by SAP on passing on science and institutional knowledge was contested by producers during the research's NWFS, who commented that traditional knowledge is key and needs to be recovered, and that producers are not always recognized for their input to building knowledge. "Producers' inventions and experimentation in their daily farming have not been properly acknowledged, nor has the creativity of other people such as housewives who were front-runners on inventions during the Special Period. They had created recipes that no one would imagine." (Interviewee, PS3). The role of producers in the development of agroecology was also highlighted in a meeting of scholars, representatives of NGOs and ANAP. Although the debate was heavily weighted towards the role of researchers, this was rebutted by ANAP's representative and some researchers who believed that producers are fundamental to the development of agroecology in Cuba. Despite apparent differences, it was clear that all agreed that science should endeavour to support and educate producers. This highlights the role of ANAP as the organisation representing *campesino/as* in the country, officially accepted by the State. The inclusion of agroecology in ANAP's methodology dates to 1999 when it was adopted from ACAO (Wright, 2005). It was only in 2009, when the SAP became part of the State-led input substitution strategy that agroecology was inserted in a national agricultural programme. Until the Special Period and during the rise of organic agriculture, ANAP had

been promoting the scientific and technological approach to building Marxist-Leninist socialism (as explained in the PCC's debate about the agrarian question). This might explain why it has not been pushing agroecology in the official narrative. Without neglecting the key role of ANAP since its adoption of the Campesino-to-Campesino methodology, and the dissemination of agroecology among rural producers (Machin-Sosa *et al*., 2013), the question is that since ANAP is an LVC member and a key actor within the State-civil society hegemony, how is this used to pursue FS' call to defend local traditional knowledge of small-scale sustainable producers in overall policy making? This question is posed as a relevant issue for understanding and contextualising producers' decision-making power in relation to the governance of knowledge production. In this context, the connection between ANAP and the SAP, is part of the networking with national institutions in the agricultural sector, as explained by a GNAUSF's director (Interviewee, SG21).

Reflecting on the overall content of the debate in the two events mentioned above: the NWFS and the meeting about agroecology, the issue is not about the recognition of traditional knowledge but the recognition of the producer's role in agroecological knowledge production, which in the SAP is a mixture of traditional knowledge, science and their combination, all manifested in different forms and at different times. This is further explored below.

5.6.2.1 The traditional-modern configuration of knowledge production

"Conceptualisation of issues such as agroecology and FS might not be extensively debated in Cuba but when you search at the empirical level you find the theory in actual practice," explains a leading researcher (Interviewee, SG35). This comment compares with a point made by a producer who knew about agroecology, "there is knowledge among campesinos about practices that do not damage the soil or the plants and that improve productivity, only that they do not name it as agroecology, or it is explained from different angles*."* (Interviewee, SG5). Both comments relate to the question of how much of what is in use is based on producers' own practices or traditional knowledge; and how much is claimed in the name of agroecology, in as far as agroecology is becoming the 'truth' positively sanctioned by the science community and the official narrative. This also resonates with a comment by a researcher, when he visited a *campesino* who invited him for advice, he realised that rather than learning something from him, what the *campesino* wanted was to show how well he was doing and to be praised by someone from a university (Active Participant Notes). Exchange between producers and academics-researchers is something that both parties prize highly, as perceived during visits to *fincas.* A producer comments that the relationship between a producer who is a creator/innovator is beneficial for a researcher and vice versa. This is because both gain credit

within the scientific community as well as with influential people; he jokingly says “the *campesino* innovator is almost like the treasure discovered by the scientist or researcher” (Interviewee, PS3).

As mentioned before, the relationship with science was shaped by power relations, as something that needed to be managed. In the ideological ‘non-existence’ of the *campesino* identity, its voice needs to have leverage with the research and scientists. In this situation, the term ‘movement’ ascribed to the SAP by members of GNAUSF could be a way of generalising/cementing ideas that agroecology is embedded or used by a movement, without necessarily meaning that everyone knew about the term or even that there was a ‘movement’. It is also a way of consolidating science as the dominant form of knowledge and effectively subsuming traditional knowledge within it. This became apparent to the researcher when using the questionnaire on agroecological practices, a tool based on questions and terminology used by Cuban researchers and authorised to be used by the Cuban university hosting this research. It is common that producers with no knowledge about agroecology or who had not heard the term, were the ones who did not recognise some of the terms used in the questionnaire, prompting concerns that these terms are chiefly used by scientists and technical staff as transmitted to them. On the other hand, once the terms were explained, most producers say that was how agriculture had been practiced before, ‘the way it used to be’.

Another element that adds to the new configuration of knowledge production among SAP producers is their mixture of skills, as many come from different professions, and are motivated to diversify their production to make their livelihoods more sustainable, including experimentation and innovation on sustainable technologies, e.g. on the use of homeopathy. The amalgamation of traditional knowledge, transfer of professional skills, and relations with pro-ecological researchers and scientists is embodied in some of the SAP producers, e.g. in the ‘champions’. As in the ‘emulators campaign’ in the Special Period, under the parameters of the National Food Programme (Deere,1992), the SAP’s champions were agents sharing their own knowledge, although this did not mean that the stigma against traditional farming was removed from the official narrative, where the priority was to focus on science and supporting large-scale agroindustry. An interesting aspect to highlight in the role of the ‘champions’ is that in fact they are spreading knowledge production within rural, urban and suburban areas in a fluid manner. Bearing in mind that these ‘champions’ are from across all areas, the SAP has the potential to effectively spread traditional knowledge, albeit syncretised within science, in this way reaffirming traditional campesino existence. Somewhat like the Rivera-Cusicanqui’s reflection about modern Indigenous people’s presence in the cities, not as an adornment or cultural remnant but as the new modernity (2012).

In this context, other aspects that reflect the world vision of traditional knowledge, such as the role of spirits and the moon's phases, are included neither as an agroecological indicator nor within the aspects that need to be passed on to technicians and producers and within the scientific and academic spheres. These aspects are however shared by almost all the producers interviewed, even those who do not know how to apply the lunar calendar know that it is a *campesino* practice. Relationship to the spirits is reflected in a key aspect shared by a producer, who answered the researcher's questions about the altar that he has under the Ceiba tree[65] (Bombacaceae - Kapok tree) in his *finca*. "This is my relationship with the spirits, they are part of this land and I need to be in good relationship with them." (Interviewee, PL13). Reflecting on the meaning of 'Mistica' in FS, *"Mistica* or the transcendental connection with Earth and all that exists" (Nyéléni, 2007) the altar encapsulated the relation with that aspect of nature that positivist science still has not managed to find ways to perceive, comprehend and live with. It is also the transcendental aspect of the self, in connection with nature (Bhaskar, 2008) that fosters a different perception and praxis of reality. A researcher's comment on this issue is that acknowledgment of the 'spirits' or that invisible part of reality in Cuba is more common that most scientists publicly want to accept, but it is part of the Cuban identity (Interviewee, SG17). The extent of practices involving the invisible reality and its role and impact within agriculture and food systems, particularly in Cuba, is a theme for further research.

5.6.2.2 Knowledge production and change of paradigm: conviction versus pragmatism

The contradiction in the mixed approach to agriculture in the Cuban socialist Socio-economic Model was projected onto producers through knowledge production and dissemination without due critique. This is reflected in producers' views. One producer reflects on the generalisation that agroecology is widely spread among producers: "It is one thing saying that they know about agroecology and another what they are doing on their land" (Interviewee, PL11). Another producer notes that the producers are blamed for low levels of production or not putting the land into production as expected, for instance in official news in the media[66] of SAP producers' performance. There seems to be no consideration of the reasons for the contradictions between theory and practice, for instance the need to produce quick results in a self-sufficient and agroecological manner, the amount of labour/time needed to clear the land, adverse and changing climate conditions, and, importantly, mixed messages about the

[65] An important signifier of Afro-Cuban religions' symbolism. Subaltern meanings that are not part of the overt national narrative, other ways of knowing that are rooted in embodied experience, orality and local contingencies (Hartman, 2011).
[66] The media is often used to educate and created narratives about agriculture, for instance reports about the performance of SAP producers and there are occasions in which agroecology reaches prime time TV programmes.

best way to cultivate, for example the practicality of using non-ecological practices in other programmes which are presented as more efficient (*Polos Productivos*) or the official message of the prominence of high technology, as in the case of extending the amount of land in usufruct for those using technology. There is no questioning - or an intrinsic acceptance of - the producers' need to adopt knowledge and less interest in incentivising-nurturing their own knowledge systems. This can be interpreted as the normalisation of the 'social non-existence' of the *campesino/a's* knowledge, but at the same time SAP's *campesino/a*s are pragmatically expected to pick up some of the practices of the traditional ways to cultivate land using low inputs to contribute to national food provisioning. The contradiction in the official system is that on the one hand it asks for sustainable agriculture and on the other hand continues to promote agriculture of a productivist style. Two agroecologists in Cuba, Caballero-Grande and Vazquez, express this as "the insufficient conscientization and training at the productive base and decision-makers at all levels, the lack of a local system of technical services for a sustainable agriculture with agroecological basis, and the maintenance of the process of technical innovation that was created for a productivistic agriculture." (2016:480).

5.6.3 Summary

This chapter showed that the configuration of knowledge production in the agriculture sector is strongly based on science and technology in line with the Cuban ideological science & technology-based socialist approach to development. The SAP closely follows this approach through the Extension Service System and its interaction with the network of science and educational institutions providing support to the agriculture sector. This network operates for both conventional agriculture and that carried out under low input, organic and/or using agroecological practices. In this respect, there is a generalist view of the support provided to the SAP, in that all institutions, regardless of whether or not they are focused on, for instance, agroecology, they are referred as supporting agroecology.

The SAP also interacts with ANAP and its Campesino-to-Campesino methodology in rural areas. According to the SAP Guidelines and report from the three research sites, the Extension Service System focuses on transmission of knowledge to producers, particularly from scientific advances and learning from other producers. Producers' experience is transmitted through the *finca* visits of the SAP's monitoring and evaluation system, 'The Movement of Excellence'. As per the SAP Guidelines and producers' comments the main content of trainings is on technological aspects related to agriculture. Although the SAP covers food processing and distribution within its subprogrammes these components have no indicators on knowledge production or how these were supported. Other aspects such as

social, economic or building governance structures or producers' organisations do not appear in the SAP's Extension Service System, nor are they mentioned in the monitoring and evaluation system.

Regarding the agency of producers in terms of knowledge production, this section presented the way in which they interact in the State-civil society structure. Producers permeate and navigate institutionalised forms of knowledge production and traditional knowledge from rural producers. Although, the evidence shows that traditional knowledge systems exist in the country, the tendency is towards validating scientific knowledge, including agroecology in this. This section evidenced that SAP producers have a mixed approach to knowledge production, retrieving from traditional knowledge, adopting scientific development and building producer's own experimentation.

The last part of this section discussed the relationship between the mixed approach to development in the Cuban Socio-economic Model and the process of knowledge production. For instance, the contradictions between demanding sustainable food production in the SAP and the generalist approach to knowledge production in which *campesino/as* are told to use traditional knowledge, although the latter is not officially a priority.

This last FS Pillar closes chapter 5, or the analysis of the SAP in its current condition. It presented the analysis of the research findings through the Six FS Pillars. Each FS Pillar was assessed first in its theoretical groundings which then served as guidance for analysing the findings. The level of abstraction covered two angles: on one side the official narrative, as per official documents and the narrative of the PCC leadership, on the other, the individual views of research participants. Following this exploration of the current status of the SAP, the thesis now turns to the third step of the FS-A-D analytical framework, that is the dialectical analysis of the SAP through the 'four-planes of the social being' or the discussion chapter.

Chapter 6 Discussion

The Suburban Agriculture Programme and Food Sovereignty-Agroecology in Cuba

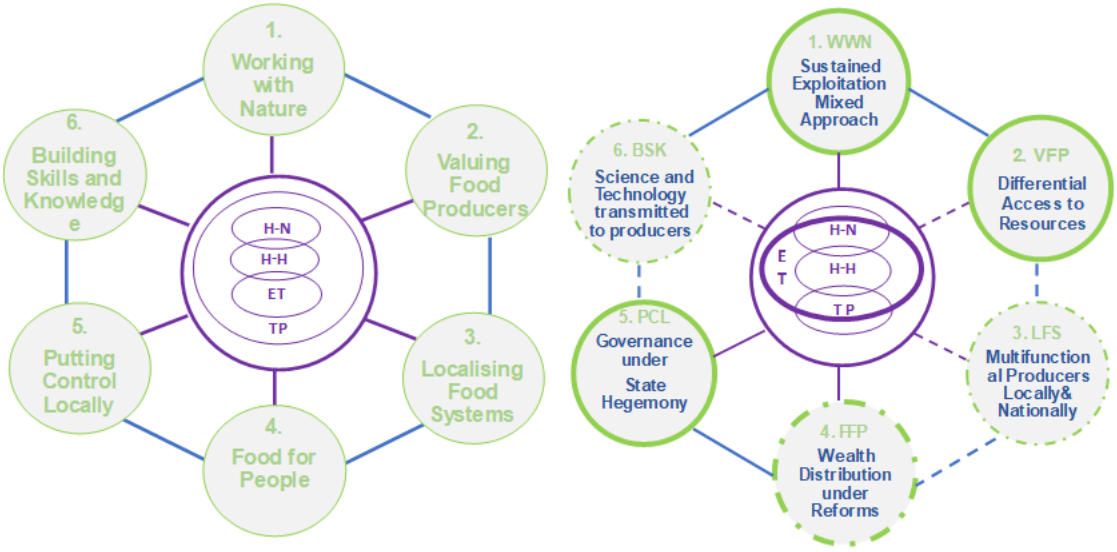
This discussion is the third step in the dialectical analysis process of the research, leading to the final step, the conclusion. This chapter reviews the historical analysis of the precedents of the SAP (described in chapter 4) and the characterisation of its current conditions (described in chapter 5), to provide an analysis of the emergent stratified totality. This discussion involves a dialectical analysis of theory and practice, and how they transform each other in praxis (Bhaskar, 2008). This is undertaken through the 'four-planes of the social being'.

As explained in the presentation of the FS-A-D components and their relevance in this thesis in chapter 2, (see also Figure 2.6), and how it was used in this research, in chapter 3, the 'four-planes of the social being' are key in the process of drawing together the elements and processes of the totality described as individual parts. That is the analysis of SAP through each FS Pillar and how the individual and the collective interplay in a structure of unity and at the same time in difference (ibid). Addressing the 'four-planes of the social being' helps to reveal and discuss the points of connection, juxtaposition and/or contradiction, that are found in the precedents of the SAP as well as in the exploration in the FS Pillars, which propel change and/or critical moments of the SAP as an open-ended reality. Figure 6.1 illustrates how the components of the original FS-A-D framework (presented in Figure 2.6) have been transformed after the framework have been applied in the study of the SAP. It highlights key changes in each FS Pillar, the interrelations between them and its connection with the 'four places of the social being', therefore driving or constraining Transformative Praxis towards the construction of FS-Agroecology.

Figure 6.1: The FS-A-D applied to the SAP: changes towards the construction of FS-Agroecology in Cuba

Food Sovereignty-Agroecology and Dialectics

Dialectical Historical Materialism (Karl Marx) and Dialectical Critical Realism (Bhaskar, 2008)
Four-Planes of the Social Being: Human-Nature (H-N), Human-Human (H-H), Emergent Totality (ET)
Transformative Praxis (TP) (Bhaskar, 2008)
Six Pillars Food Sovereignty - Agroecology (Nyéléni, 2015)



Purple circles represent the 'four-planes of the social being'. They show how each plane develops in relation to each other, and **Purple Lines** represent relations with the content of the FS Pillars. Changes in the circles shows the extent to which the Transformational Praxis takes place, or whether it is overshadowed by other elements and in turn affecting the FS Pillars.

Solid green circles & blue and purple lines represent aspects and relations-processes of the SAP, contrasted with the FS Pillars and the 'social being', that are consolidated within the Cuban socialist system and where SAP food providers and non-food producers have less influence. The consolidation in some areas represents main contradictions affecting strongly other areas.

Broken circles and lines represent aspects and relations within the SAP that have been subject to changes according to new reforms and policies, but also areas in which people might exert some influence.

Source: Author

This chapter is divided according to the 'four-planes of the social being': Human-to-Nature relations; Human-to-Human relations, the Emergent Totality - or social relations/institutions - and the Transformative Praxis. Table 6.1 shows a scheme of which parts of the 'social being' correlate more strongly with each of the research objectives and questions. However, it is crucial to highlight that the four-planes are interrelated and contribute to responding to all questions and subsequently to the research aim.

Table 6.1: Research aim, objectives, questions and the 'social being'

Aim and Objectives	Questions	Analytical tool: Planes of the Social Being
Aim: To explore the development of agroecology in suburban food and agricultural systems and its contribution to food sovereignty in socialist Cuba.		
Objective 1: Explore the development of agroecological suburban agriculture in Cuba	*1. What are the historical precedents of suburban agroecological food and agriculture systems in socialist Cuba?*	Human-to-Nature Human-to-Human Emergent Totality Transformational Praxis
	2. What are the characteristics of current suburban agroecological food and agriculture systems?	
	3. What is the contextualisation of agroecology and the food sovereignty framework in Cuba?	
Objective 2: Explore the multifunctionality aspects of suburban agriculture	*1. To what extent is suburban agroecological agriculture multifunctional in Cuba?*	Human-to-Nature Human-to-Human
Objective 3: Explore how suburban agroecological food and agricultural systems contribute to food sovereignty	*1.To what extent do suburban agroecological food and agriculture systems contribute to food sovereignty in socialist Cuba?*	Human-to-Nature Human-to-Human Emergent Totality Transformational Praxis

6.1 Human-to-Nature relationship: the underpinning historicity and world view of the SAP

6.1.1 Food Sovereignty and Agroecology in Cuban socialism

Two of the foundational aspects of the research are contributions to address epistemological and ontological gaps in the conceptualisation of agroecology. In doing so this contributes to understanding the geopolitical development of agroecology in socialist nation-States, particularly in its Marxist-Leninist path, in contrast to capitalist ones. Following the historical analysis of the development of agroecology and its connection to FS (presented in chapter 2), this research departs from the ontological premise that conceives FS and agroecology as a stratified ontology of unity-in-difference, that is FS-Agroecology. This resonates with the FS perspective that views agroecology as a part of the FS framework (Nyéléni, 2015). Moreover, it acknowledges the stratified reality inherent in food systems, that is the differences in social and natural aspects, as well as epistemological differentiations that however are in unity.

In addition to establishing this preliminary setting, a second point arrived at in the research is that the counter response of FS-Agroecology to capitalist logic holds relevance in both capitalist and Marxist-Leninist socialist nation-States, embedded as they are in the structure

of the State and international para-State institutions. This is deduced for two reasons. The first, discussed in chapter 2, is that the relational historicity of FS-Agroecology takes place under the remit of the nation-State and para-State institutions (Patel, 2011; Edelman at al., 2014; Alonso-Fradejas *et al*., 2015; Schiavoni, 2016; Trauger, Claeys and Desmarais, 2017). FS's rejection is of the capitalist system (Nyéléni, 2007; La Via Campesina, 2008), yet it does not differentiate or limit this rejection to a specific form of nation-State, that is either socialist or capitalist. Therefore, it refers to the State as a social construction with its corresponding oppositional fractions and its hegemony created by force and consent. As such it includes the Statist's form of Marxist-Leninist socialism (Lenin, 1966). Therefore, as long as there is State, there is a struggle against master-slave relations, for example class opposition, and the alienation of nature, drawing on Bhaskar's dialectical reflection around understanding the unity-in-difference of humanity and nature (2008). Moreover, the FS proposal is not framed within the concept of Stateless societal formations, as purposed, for instance, by libertarian versions of socialism internationally or within Cuba (Kropotkin, 1898; Dolgoff, 1972, 1977; Bookchin, 1986; Fernández, 2001).

In this relational context, nation-States (socialist and capitalist) and the pursuit of FS-Agroecology are interlinked to the political and ideological agenda of global para-State institutions. FS-Agroecology and nation-States in general are both part of, and impacted by, policy making in institutions such as the UN and the World Bank, in a power relations context. This research shows that the situation of Cuba as a Marxist-Leninist socialist nation-State is no different. Chapter 4 highlights this by touching upon external (or exogenous) forces in a relational perspective, through the following three points: a) Cuba's adoption of UN policies and funding for instance from the FAO and World Food Programme, b) Fidel Castro's participation and stance in the UN Earth Summit in 1992, and the Cuban adoption of the sustainable development concept that emerged from this (Asamblea Nacional del Poder Popular, 1992), and c) Cuba's geopolitical situation regarding the US blockade and historical developments regarding the conceptualisation of food security and FS. These three points have fundamental bearings on the development of food and agriculture systems in Cuba as well as how FS and agroecology (whether separate or in unity) are adopted and developed in the country.

The second reason for asserting that the development of FS-Agroecology is relevant and holds similar patterns in socialist and capitalist nation-States, and more precisely in the Cuban Marxist-Leninist socialist nation-State, relates directly to how agroecology was disseminated originally within the country and its later insertion within the mixed approach to agriculture - through the SAP - in the Cuban socialist Socio-economic Model, as described in chapters 4

and 5. Moreover, it concerns the adoption of the term FS by the official discourse. The research evidences that the way different actors have portrayed agroecology and FS in Cuba, generates misinterpretation about its history, which contributes to the original ontological and epistemological gaps that were discussed in chapter 2, for instance the obscuring of epistemological subjects.

Moreover, the general tendency by scholars to argue that Cuban leadership is committed to FS or that agroecology and FS are policy in the country (Rosset, 2009; Simon-Reardon and Perez, 2010; Gürcan, 2014; Clausen, Clark and Longo, 2015; Menser, 2018; Giraldo and McCune, 2019) contributes to creating the view that Cuban socialism is akin to the type of FS-Agroecology that is proposed internationally (Nyéléni, 2007), or simply that agroecology is akin to socialism (Bellamy-Foster, 2008). What is not addressed in these claims is the type of socialism, rather they imply a generalist notion of socialism, despite the fact that this term is not conclusively defined. Moreover, from the Marx's perspective of socialism, this is a historically dependant and transitional type of category (1970) based on the existence of the State (Lenin, 1966). This generalist vision of socialism leaves aside other paths to socialism which reject the notion of the State, for instance anarchism or libertarian socialism (Kropotkin, 1898; Dolgoff, 1972; Bookchin, 1986, 1990), a perspective that has existed in Cuba since 19th century as explained in chapter 4. In this sense, the response to the third question of this research: what is the conceptualisation of FS and agroecology in socialist Cuba? - is precisely related to this issue of understanding the type of socialism existing in Cuba, which in turn impacts on the understanding of the SAP and its contribution to FS.

As per the findings of this research, the type of socialism currently in Cuba is specifically Marxist-Leninist socialism with its defence of the State, centralisation of power and a scientific-technological approach to development. This is evident in three aspects: it is constitutionally adopted as the vision of the nation-State (República de Cuba, 2019), it is the ideology of the PCC (Partido Comunista de Cuba, 2017b), and it is the vision of the sought-after type of society - a "socialist prosperous society" (ibid). Moreover, the libertarian perspective of socialism has been suppressed before, and from the winning of the Revolution until now (Dolgoff, 1977; Casanovas, 1998; Fernández, 2001; Shaffer, 2019).

The Marxian-Leninist socialism style adopted in Cuba has substantial implications for the notion of sustainable development in the formation of the country's socialist society and its development strategy, thus impacting on the diversity in forms of governance and the autonomy of individual and social actors, as well as with the recognition and valuing of small-

scale peasantry. It has implications for the way in which agroecology and FS are conceptualised in both the official narrative and by participants in this research.

Exploring the underpinning world vision of Cuban Marxist-Leninist socialism through the tenements of sustainability, diversity and the defence of the small-scale modes of food production (presented in FS Pillar One 'Working with Nature', chapter 5) shows that Cuba in its strong anti-capitalist stance has adopted the sustainability concept in line with the liberal sustainable development conceptualisation proposed in the Brundtland Report (World Commission on Environment and Development (WCED), 1987) and promoted by para-State institutions. This concept of sustainability is associated with tensions and concerns regarding its productivist approach and the use of 'green technologies or practices' as a palliative for its focus on economic development to the detriment of the other two aspects included in the concept, that is environmental and social sustainability. This approach lends itself to co-option of ecologically friendly approaches such as agroecology and mixing them with productivist approaches such as climate smart agriculture (Pimbert, 2017), presented also as sustainable. This approach to sustainability impacts directly on the FS stance regarding defence of diversity and small-scale modes of production. This is because diversity within the FS not only refers to diversity of produce but diversity of social subjects - diversity of small-scale food providers, forms of governance and knowledge systems. Thus, this aspect contrasts sharply with the PCC's prioritisation of conventional large-scale agriculture over peasant or *campesino* agriculture.

As discussed in chapter 4, the Cuban socialist stance is based on progress, growth and development determined by science and technology, modernity, and industrialisation (República de Cuba, 1992, 2019; Ministerio de Justicia, 2003). This perspective is not a critique of the capitalist logic underpinned by the worldview of homogenisation and modernity on which sustainable development is based (Escobar, 1995). Rather, sustainability and protection of the environment is a matter of national sovereignty against imperialist environmental debt and colonialism (as expressed by Fidel Castro).

The Cuban socialist worldview is backed up by a policy framework built since the winning of the Revolution, in which the strategy for development is based on the optimized exploitation of natural resources under State-led, large-scale industrialised agriculture, whilst the peasantry and small-scale production is perceived as a backward model of production and not compatible with scientific-technological socialism (Rojas, 1978; Nunez-Jimenez, 1982; Partido Comunista de Cuba, 2017b). This fundamental worldview has not changed but has been consolidated through major current PCC policies (Partido Comunista de Cuba, 2017b),

despite reforms related to agrarian relations. This is reflected in the cementing of the mixed approach to agriculture after the updating of the Socio-economic Model. The mixed approach comprises two strands: the development of industrialised, monoculture agriculture - in the *Polos Productivos* - including the development of GMO and biological controls, and agriculture under low input conditions in programmes such as that of the urban and suburban agriculture, the Mountain Programme and Soil Recovery Programme (*Poligonos de Suelos)* (Partido Comunista de Cuba, 2017b). Both strands operating on the premises of protecting the environment.

In this worldview, the autonomy of small-scale *campesino/as* is not the priority of the State in the same way that national sovereignty is. This was evidenced throughout the research, most directly in the analysis of the SAP food providers and their agency in the governance of food systems (in sections 5.5 and 5.6 in chapter 5). One of the topics highlighted by producers is that having land, or the size of their land, was not their main concern but rather the need to have inputs and freedom to decide what to do on the land. These two topics - having access to land and freedom to decide - are critical to understanding both the worldview underpinning Cuban socialism and its impact on the development of agroecology and FS. They relate to the Cuban socialist principle of re-distribution of wealth (República de Cuba, 2019), which makes Cuban socialism distinct from capitalist modes of production. The latter involving exploitation of nature and dispossession of the peasantry (Marx, 1976). The principle of re-distribution of wealth in Cuba allows for the agrarian reforms and Land Redistribution Laws in which small- and medium-scale producers are included. Valdes-Paz (2009) explains this as the wealth created through the conversion of the peasants into proletarians and exploitation of natural resources, which is redistributed and invested in modernisation and human development.

In this context, although FS has been in the international arena for decades, with its strong stance on the defence of the autonomy of small-scale food producers and driven by peasant social movements, this was not a mainstream concept used in Cuba until the political move to legislate on FS within the context of a funding initiative by the FAO and the EU in 2020 (FAO, 2020) (see chapter 5 section 5.4). According to the revisions of all the Cuban constitutions from the winning of the Revolution until the approved version in 2019, (i.e. the collection of speeches of Fidel Castro (Nunez-Jimenez, 1982), the PCC recorded main reports since the first PCC congress in 1975, the proposal for updating the Socio-economic Model in 2011, the Policy Guidelines and Development Plan approved in 2017, and the SAP Guidelines, the term ‘food sovereignty’ only appears in one line of the Policy Guidelines in 2017 (Partido Comunista de Cuba, 2017b). This counters the arguments that FS was policy in Cuba prior to this date. These issues relating to the worldview underpinning Cuban socialism and its relation to FS

are key findings regarding the initial knowledge gap concerning the development of FS and agroecology in the unique Cuban Marxist-Leninist socialist setting. This finding is further discussed in the following sections, thus contributing to the exploration of the SAP and its contribution to FS.

6.1.2 The SAP and agroecology in Cuban socialist sustainable development

The SAP is a State-created initiative to address problems with agricultural production and reduce the food import bill within the mixed approach to agriculture and sustainable development. As introduced in the aftermath of the 2008 crisis, the SAP can be described as a programmatic/sector-based initiative to maximise resources, both natural and human, contributing to resolving a national recurrent problem in the agriculture sector (Castro, 2009, 2010). The SAP, with its precedents in grassroots urban and suburban agriculture and the formalisation of the UAP in the Special Period, emerges from the contradiction in the model of production that is based on the overexploitation of natural resources and its impact on the social, economic and ecological fabric across rural, suburban and urban areas. This contradiction lies in the country's double vision of reducing inputs through certain agricultural programmes while investing in the input-dependant conventional agricultural model in others (Partido Comunista de Cuba, 2017b), that has caused the problems that the SAP is contributing to resolve. Under these circumstances, although the SAP is linked to suburban land and to the municipality in its design, its implementation crosses rural and urban areas across provinces, and has a direct national impact. As such, the SAP is a key national programme that magnifies historical agrarian relations across all spaces in the country, and not just the suburban one. This resonates with the debate about the suburban areas (or peri-urban spaces as known internationally) as a relational category that manifests broader agrarian social-property relations impacting on ecological and political dimensions beyond the dichotomic view of rural and urban (Tacoli, 1998; Allen, 2003; Jacobs, 2018).

In this context, the SAP is launched alongside similar reforms undertaken in the Special Period. These reforms were land redistribution, decentralisation of some State functions and opening of markets, and the insertion of low input and ecologically friendly agriculture which in the case of SAP includes 'agroecological practices'. This latter point is discussed first, in order to put into context, the view of agroecology within the official narrative as well as amongst the people interviewed in this research. The reforms and their connection with SAP are discussed below in section 6.4.

In Cuba, agroecology is officially adopted as an input substitution tool, rather than as a fundamental change in the paradigm of nature-human relations, a systemic transformation of food systems or a political stance against the capitalist model of production. This is reflected in the SAP Guidelines, where agroecology is presented throughout as a means of 'pest management control' and/or as 'agroecological practices'. At the same time, agroecology is associated with the logic of sustained exploitation (or "*explotacion sostenida"*) or what can be interpreted as 'best return on investment' on the use of resources, as stated in the SAP Guidelines (Castro, 2009; MINAG-GNAUS, 2009). As with the officialization of organic production as a farming method in the setting of the UAP during the Special Period, similarly agroecology has become the farming approach conceptualised in the SAP, with strong connotations as a technical tool for input substitution. Such an interpretation resonates with the technocratic vision of sustainable development in which approaches such as agroecology and traditional farming are used as a fix for the residual problems of conventional agriculture (Chappell, 2014). Self-sufficiency in this context equates to des-investment and focus on the economic aspect, rather than investing in a type of sustainability understood as 'maintained existence in time' (Hathaway, 2014) or as "subsistence" as proposed by Mies and Bennholdt-Thomsen "not only in economic terms but as a new way of life in all its Dimensions… economic, culture, politics, languages" (2000).

The official focus on the technological view of agroecology is shared - in various degrees - by participants in the research who had heard of the term or had knowledge about it. Agroecology is a niche term or jargon among some actors, for instance researchers, technicians, government officials and some of the producers interviewed. This is contrary to the use of the term organic, which is better known among research participants who associate it with production in organoponics and less use of agrochemicals. This is evidenced in chapter 5 section 5.1, which presents an exploration of knowledge about the term agroecology and use of agroecological practices. As per the responses of SAP producers who had not prior knowledge of the term agroecology, 'agroecological practices' were those practices used by traditional *campesino/as*. This was often expressed as 'how agriculture used to be'. There is a general tendency to use terms such as agroecological, organic, sustainable agriculture, and traditional way of cultivating, in an interchangeable manner and sometimes including the term permaculture. The difference in understanding these terms relates to the training received or connection with institutions providing trainings, as well as to the type of production unit, as discussed in section 5.1. In addition, knowledge about agroecology is mainly related to technological aspects of farming, for instance the use, or not, of biological controls and/or agrochemicals, or of taking a farming system approach. The latter is primarily the case with

producers who are connected to early initiatives on agroecology in the country and with producers-researchers in rural areas who are members of ANAP.

The concept of agroecology as the ecological management of agroecosystems and later as management of social food systems (Altieri, 1995; Gliessman, 2018) resonates with perceptions of agroecology pursued by some researchers and producer-researchers. As one producer explained, using the example of SIGA *fincas*, “this was practiced especially in rural areas through the agroecological integration of livestock and crop farming and creation of on-farm energy in *fincas* that were economically viable” (Interviewee, PA1). For these participants, agroecology is not about an input substitution tool or a programme but an overarching strategy that is able to be applied across territories and is a necessity for the country. A few researchers and producer-researchers contend that FS is a key ground for agroecology (SG17, SG37, SG38, SG39, SG40). How this connection takes place in reality is perceived again as a territorial approach in terms of scaling out and up, with some light reference to decentralising decisions.

In contrast to urban agriculture, the use of agrochemicals in the SAP is not legally banned (as per the SAP Guidelines and the Land Redistribution Law associated with it). Overall, there is an understanding that agrochemical use is based on pragmatic decisions, in other words, using whatever is available when needed. One producer put it thus: “even if you are committed to only ecological methods, there are times when you need to use them [agrochemicals], for instance because of the increase in pests” (Interviewee, PC16). A member of the National Group of Urban and Suburban Agriculture (GNAUS) also commented “there is no such thing as pure agroecology” (Interviewee, SG19). According to the SAP design and official narrative, there is no commitment to transit away from agrochemicals, nor for that matter to move toward agroecology as a systemic approach. As Raul Castro stated, there is need to work the land with the experience of *campesinos* and State enterprises (MINAG-GNAUS, 2009), that is to have traditional agriculture together with large-scale industrialised agriculture. Similarly, a government official commented, “the country needs both conventional and agroecological approaches” (Interviewee, SG29).

Furthermore, the degree of agrochemicals use is a critical point because it creates differentiation among *campesino/as*. There are those who can access them and those who cannot, as in the case of *parceleros* who mentioned that they don’t receive them. This creates a double standard practice and power tension, in which some programmes such as the *Polos Productivos* can access them, while others are required to be low input and self-sufficient. However, all producers, including in the SAP, are given agrochemicals at some point to meet

the State target production priorities (Interviewee, PC21). The use of agrochemicals and the country's investment in producing them, contrasts with the comments of producers about the production of manure and its increasing cost (commented in the National Workshop on Food Sovereignty) and with the argument of one producer that he could produce humus and liquid fertilizer for the entire country if he was allowed. "But they are not interested in individual producers, otherwise we compete with State enterprises" (Interviewee, PL1). The use or not of agrochemicals, and access to ecologically friendly inputs, e.g. biological controls, manure, bio-fertilizers, machinery appropriate for it, is a political decision. As a producer mentions "having land is not an issue, but how to produce and not being pushed around to use products is the matter" (Interviewee, PC13). This resonates with James Anderson's (Karl Marx's source on soil studies) findings on soil fertility that "problems with the soil are related to failure to adopt rational and sustainable agricultural practices" (Bellamy-Foster and Magdoff, 2000:48). Taking this a step further, the LVC contends that it is a broader political issue related to the degree of producers' autonomy and encapsulates this as an issue for integral popular agrarian reform (La Via Campesina, 2016).

From the perspective of the totality of what agroecology and FS entails, out of the 279 people interviewed for this research, those engaged in food processing, distribution and non-food producers, 148, have no knowledge about the term agroecology. The SAP's production is intended in geographical proximity to distribution points, yet the food distributors and those who consumed it have no knowledge of the term agroecology. This resonates with ontological relational aspects of FS-Agroecology, that is the interrelations and processes in the entire food system and the key role of processing in tackling division of labour between - and within - large industry and agriculture. It also highlights that studies about agroecology and FS tend to have a blind spot around food processing and non-producers (Robbins, 2015). This is understood not as the dichotomic relation between producers and consumers, but as the production and reproduction inherent in the act of consuming and the reproduction of human-to-nature relations (Moore, 2015) and construction of social fabric, not merely as market relations (Mies and Bennholdt-Thomsen, 2000; Breitbach, 2007).

The Human-to-Nature relationship discussed above illustrates the world view in which the SAP is embedded and how it relates to the notion of FS 'Working with Nature'. The SAP's world view is based on Sustained Exploitation and the Mixed Approach to agriculture, represented as a solid green circle around the FS Pillar One, in Figure 6.1. This indicates that the level of influence of small- and medium-scale food producers and non-producers is minimal, it also represents the contradiction between the world view pursued by the State and the agency of small-scale food producers to decide over matters of how to construct Human-Nature

relationships (shown by the solid purple lines around FS Pillar One in Figure 6.1). This contradiction is discussed in sections below regarding other dialectical relations. Building on issues presented above, the next section continues with the discussion from the perspective of Human-to-Human relations of the 'social being'.

6.2 Human-to-Human relationships: the division of labour and the rural-suburban-urban connection

The SAP's responsibility to follow up on the implementation of land redistribution as per Decree Law 259, touches upon the double nature of food systems. It addresses the ecological problem of recovering land left idle and depleted because of overexploitation and addresses the lack of labour in the agriculture sector. As such, the SAP was launched to be run with an ethos of self-sufficiency by bringing people to the land, those who have the means to work it (Ministerio de Justicia, 2008b). From the point of view of the 'social being', the SAP's multipurpose approach manifests the interdependences between human-to-nature and human-to-human. In other words, the ecological problem is resolved through reorganising human-to-human relations within the mixed approach to agriculture and the Marxist-Leninist socialist centralised planning system, this in turn having an impact on the social construction of the biophysical dimension. These points are made explicit by discussing the dialectical juxtaposition of strategies to resolve the social and ecological problems of low investment and maintaining the mixed approach to agriculture. The first strategy relates to the State-led redistribution of idle land, the second to the SAP's multipurpose aim, and the third to the introduction of producers into the national food procurement and market system. As discussed below, the juxtaposition of these three strategies is not free of contradictions, however by highlighting them, the seeds for change are made visible as is the SAP's relation to FS.

6.2.1 The Cuban agrarian question: land redistribution and the differentiation of *campesino/as*

The Cuban agrarian question that was debated in the first PCC congress is tacitly back in sight, progressing from the land redistribution in 1994 and 2008 and its link to the creation of the SAP in 2009. These initiatives are part of the State-led strategy to reorganise labour and land involving the intrinsic reconsideration of the role of the *campesino/as* as the labour force to generate agrarian capital in the socialist Socio-economic Model. The redistribution of land is presented as an important factor in resolving the problem of lack of labour in the agriculture sector, however it is not only for that reason. This research reveals that, although not stressed or stated in the official narrative in the creation of the SAP, a revision of the Land Redistribution

Laws combined with producers' comments show that land redistribution in suburban areas is open to different types of producers: individuals, cooperatives, and State enterprises, under DL 259 (Ministerio de Justicia, 2008b). Moreover, land in suburban areas is also open to foreign investors (National People's Power Assembly, 2014; Ministerio del Comercio Exterior y la Inversion Extranjera, 2015). This suggests that as much as bringing labour to the land, the aim is to attract capital. Moreover, this reflects the demand of the DL 259 which states that people wanting to access land must have the means to work it. Looking at this from the land question (Borras and Franco, 2012) and from the FS stance of valuing small-scale food producers (Nyéléni, 2007), it shows that redistribution is not directed purposely towards poor or small-scale producers. In these circumstances, under the mixed approach to agriculture, the SAP comprises small-, medium- and large-scale landholders, all coexisting and accessing national infrastructure nominally on the same basis. According to information found in this research, the differentiation among SAP producers reaches further levels, as presented in Figure 5.2.2, and these are not captured in the official narrative (see Table 4.3). Their differentiation reflects the requirements of the Law and the mode of production undertaken, (whether conventional or ecological agriculture), size of land, length of land lease, and the corresponding amount of State support that is received.

The land redistribution aim, to bring back labour to the land, addresses the two labour issues: its lack in rural areas and its excess in urban areas. From the point of view of agrarian and peasant studies, the SAP could be interpreted as a "repeasantisation" process (van der Ploeg, 2018). However according to the DL 259, it does not fit fully into this concept. This is reflected in the fact that people receiving land are not allowed to build any type of construction, moreover the land could be taken back, and compensated for, if the State requires it. As far as land redistribution works in practice, people move between rural, urban and suburban areas. Most producers in this research commented that they lived in the city or the town and travelled to the land. This suggests that, rather than a resettlement of people on the land or a long-term strategy for producers to develop their livelihoods, it was more of a strategy to address the lack of labour in the agricultural sector. On the other hand, from the official point of view, the ability to maintain control of the land and to change policy at any point was maintained. This reflected the new changes in the Land Redistribution Law in 2012 (DL 300) that allowed for the construction of work-related buildings which, in case of having to return the land, would be compensated for. The changes also allowed for the possibility of reapplying for an extension of the lease. In 2018 (DL 318) the amount of land available to an individual producer increases, however with the proviso that the land is to be used for production 'that allows the use of technology' i.e. not necessarily smallholder farming. Thus, the degree to which the land redistribution linked to the SAP can be associated with repeasantisation is

nuanced. The differentials between producers are associated with issues of sustainability of livelihoods and 'full existence' over the long term, determined as they are by certainty over land tenure (Borras, 2007) and the recovery of soil and fertility (Bellamy-Foster and Magdoff 2000:53), under a low investment strategy. This is in contrast with the ground rent generated from the use of land, for instance in the Mariel Port or by State enterprises such as the *fincas* run under the armed forces e.g. the Youth Worker's Army (or *Ejercito Juvenil del Trabajo* - EJT) *fincas* which have easy access to labour and direct sales to their own markets (Active Participation Notes). As some producers argued, they feel discouraged from investing in the land as they do not know when it might be reclaimed. This resonates to an extent with Marx and James Anderson's remarks that tenants are less likely to have interest in replenishing the soil (in Bellamy-Foster and Magdoff, 2000). Having said this, producers interviewed for this research are not asking for land tittles but to have freedom to decide on inputs, fair prices and to have continuity-certainty of tenancy. Resolving the social and ecological problem, or as Karl Marx put it 'repairing the metabolic rift', goes hand in hand with land tenure. Additionally, it relates to the unrecognition of women's work in agricultural production and capital accumulation, in a similar vein as in industrial capitalist settings (Mies, 2007). From their own perspective Cuban authors (Pérez, Martin and Garcia, 2016) in a socialist setting such as Cuba expose a similar situation regarding the invisibility of women's work (at home, in the production unit and even within the cooperatives), which generates, in turn, inequalities in accessing services and land within the land usufruct laws.

The second strategy to address the social and ecological problem is the multipurpose design of the SAP and the linking of its producers to small scale industries which connects both local and national levels and rural with urban areas and in a broader sense with the construction of human-to-human relations impacting in the construction of the social fabric.

6.2.2 Multifunctional *campesinos* in cooperatives and small-scale industries: mending the metabolic rift

Within the Cuban centralised planning system, this research found that the SAP presents an interesting strategy with its multipurpose design, the emergence of a small- and medium-scale traditional multifunctional *campesino/a*- or producer, the linking of food production, processing (linking small-scale industry and agriculture) and distribution, and the production/sharing of knowledge, experiences and food across rural, suburban and urban areas. This multipurpose strategy has the potential to mend the metabolic rift, or the rupture in the metabolism of nature-social relations. The SAP was designed with various components, as presented in Table 5.1.1, including food and input production, processing, distribution and ecological services.

According to the differentials between producers in the SAP and the Land Redistribution Law in the mixed approach to agriculture, small- and medium-scale producers were expected to produce under low input conditions and using agroecological practices for both self-consumption and to meet the State contract as a requisite for receiving the land. This brings to the fore the issue of the role of SAP's producers in generating capital under low investment and at the same time generating ecological services and contributing to meet food availability in the country.

In the SAP's multipurpose design, small- and medium-scale producers were expected to be diverse and to integrate crops, livestock and agroforestry according to the soil qualities and the targets decided upon by the State (MINAG-GNAUS, 2009). As highlighted by other authors, biodiversity and the integration of systems is highly beneficial for both enhancing the ecosystem and for social sustainability (Perfecto, Vandermeer and Wright, 2009). In this regard, SAP producers did not specialise in a single crop or product but displayed a wide degree of diversity through producing food for animals and for the population as well as, in some cases, producing energy and/or farming inputs such as manure (as shown in Table 5.4.1). In the case of agroecological integrated systems of cattle raising and farming (SIGA), for example, there was a symbiotic relationship between production, processing, the production of energy and ecological services.

Bearing the above in mind, this study found that characterisations such as small-scale self-provisioning, petty commodity production or being a farmer or capitalist entrepreneur (Bernstein, 2006), as well as the overlapping of these categories (van der Ploeg, 2014, 2018) held no analytical relevance either for SAP producers in Cuba or for peasant production in general in socialist Cuba. This is because their relation to the land is mostly not based on individual or cooperative property rights, and capital accumulation at individual level, regardless of type of tenure, is tightly controlled. In addition, access to inputs is determined by an individual's association with cooperatives or State enterprises. The latter differentiates the type of inputs, individuals can receive, or not receive at all - for example in the case of *parceleros* with no targets with the State (Interviewee, PS23). This characterisation shows SAP producers to be a specific category which is further complicated considering the way in which producers were inserted into the State commercialisation system and their need to enter into the private market, as will be discussed later.

The other key aspect of the SAP's multipurpose aim, and critical in mending the metabolic rift, is the coupling of industry and agriculture at the small- and medium-scale. Studies on food waste and agricultural losses, the loss of soil nutrients and their recovery through solid and

water management, have been associated with suburban agriculture (Bryld, 2003; Ravetz, Fertner and Nielsen, 2013) albeit not necessarily linked to the analytical lens of agroecology or FS. What has been missing most of all is analysis of the intrinsic relational aspects of agriculture and food processing in relation to the division of labour and to rural and urban division. In this regard, the SAP's design regarding proximity of points of production and distribution was aimed at reducing waste, losses, and transport costs through small-scale industries in municipalities. An important element found in this research was the development of small- and medium-scale industries by individual producers and non-farming producers who managed these as cooperatives. These industries are closely linked with the development of what this research calls multifunctional *campesino/a fincas* and cooperatives, and they have had a manifold impact. As the coordinator of a medium-scale industry explained, they receive the produce from all the *campesino/a* members of the cooperative as well as from other producers in the suburban and rural areas, thus reducing distances but also losses of produce which big industries would not consider productive to collect. They generate employment for both women and men in the processing plants and points of distribution and sell locally and nationally (as explained in more detail in section 5.3). In this way, small-scale industries create a flow of food, and labour enhancing local development overall. As the owner of a small industry in an urban household expressed, this not only enables access to food produce that otherwise would only be available as costly imports, where trading used to be (at the time of the research) only in Cuban Convertible Peso, but it also creates employment and even recycled 'waste' such as bottles. These types of industries are important in the overall social fabric. This localisation of food systems is not about enclosing the local but reducing 'distancing'. It relates to Kneen's concept that modern/industrial food systems separate people from the sources of their food and nutrition with as many steps as possible (1993); and to Princen, (1997) and Robbins (2015) who argue that reducing 'distancing' is a way to create consciousness of where the food comes from and the externalities involved in its production and distribution. The issue of scale of localisation was reflected by a SAP producer who explained how their food is bringing the local to the national, thus reducing imported food. It is also reflected in that food distribution in the SAP is national rather than only restricted to the 4-5km urban radius described in the definition of suburban agriculture.

However, these initiatives do not escape the large agro-industrial bias with its ideological political and economic power relations, for instance the 'big' industries logic as explained by a producer (Interviewee, MIS2), as a logic in which, despite the success of the small- and medium-scale industries, the tendency by decision-makers is to channel their produce towards big industries. Thus, despite all their efforts to develop a diversified local economy while having a national impact, small industry is likely to be co-opted, and its benefits lost. This reflection

also serves to point out that mending the metabolic rift is after all about power tensions in the field of political and economic relations, which then have ecological implications. This is good example of how the human-to-human power relations impact on the human-to-nature metabolic relationship and exacerbate the concentration of wealth in some sectors and geographical areas (Harvey, 2006). The SAP's multipurpose approach resonates with the concept of multifunctional agriculture expressed in section 5.1 in that its design includes an integrated food system approach. Moreover, it is working with a sector, the small- and medium-scale *campesino/as*, who are already implementing multifunctionality in livelihoods across different landscapes and scales. For instance, the SAP's aim to develop infrastructural supporting units per municipality e.g. centres for the production of biological controls, gives the potential for localised support to small- and medium-scale producers. Moreover, linking land redistribution to the programme can enhance land use and the ecological services required from producers. It also has the potential to develop the local social fabric and economy. However, there are aspects that hinder this potential, for instance the differentials between the SAP producers and the level of decision making at the local level within the central planning mechanism. The main hindrance is the logic that small- and medium-scale producers need to be self-sufficient and are not a priority for investment. Additionally, the SAP runs the risk of simply being a strategy to maximise resources in the short term, instead of providing a long-term systemic perspective, by for instance developing the principles of the programme across all agricultural programmes in the country. The biggest risk is that the initiative becomes a package to alleviate problems with the externalities of the industrialised agriculture system, demanding ecologically friendly practices and technologies while carrying on with the mainstream conventional system.

Notwithstanding the differences in context, these problems resonate with the appropriation of the generic term 'multifunctional' within policy making in the European debate on multifunctional agriculture and its use to alleviate problems with trade and externalities of large-scale agriculture (as analysed by Hollander (2004). As contested by Hollander (2004), McCarthy (2005) and Tilzey and Potter (2014) the concept of multifunctional agriculture can be used as a political tool in the pursue of FS. The impact of the multifunctional *campesino/as* in the SAP can thus be used as a tool to influence policymaking in taking forward or expanding agroecology, as some of the producers interviewed in the research argued. Having said this, arguing for a systemic and national strategy based on multifunctional agriculture that is itself based on FS-Agroecology, seems problematic in the SAP and within the type of socialism in Cuba in general, due to the form in which SAP producers are politically organised. In terms of FS, it would require organisation from below, something that does not exist among SAP

producers as far as could be found through this research. The more likely channel to influence policy would be through the State cooperatives or through ANAP.

The agency of producers and other actors to influence change in food systems is discussed in the last part of this chapter, but first, the discussion turns to social-property relations that emerge with the insertion of producers into the market and the role of the State as 'mediator'.

6.2.3 The market and the State in the Cuban national commercialisation system

The problem with the market is a highly contentious issue in Cuba, that crosscuts other dynamics such as the volatility of prices and access to food and inputs. These topics were discussed with greater interest by the research participants than, for example, land access. In line with Wood's argument, the market is more than opening physical spaces for the exchange of goods, it is the logic of demand and competition and capital accumulation (2002). This research finds that the logic of the market as a mechanism for capital accumulation is to extent no different in socialist Cuba, and it has various connotations for buying food, inputs or machinery and for the labour market. For instance, buying inputs and machinery is tightly controlled by the State, while food and labour markets have been more open since the update of the Socio-economic Model.

The creation and closing down of *campesino/as* and/or private agricultural markets in Cuba has been put in the spotlight as much as issues of production. This is because food distribution in the country is predetermined by the State's central plan. The management of the distribution and commercialisation of food is predominantly undertaken by the State enterprise, however, under pressure caused by its lack of performance, *campesino* markets have been opened and closed just to be reopened again, as explained in chapter 4. The key factor behind this resonates with Wood's reflection that the market is the space to gain economic control and thus transform social-property relations. This can be interpreted as the reason for closing and controlling the campesino/as' markets, to control the 'enrichment of people and the capitalist's tendencies' (Deere, 1992; Castro 2009), as well as the control of markets where food is sold at higher prices (e.g. in the Currency Recollections Shops, or TRDs, or in the tourist industry). The role of the State as a market regulator is called for in Cuba by some producers in the SAP, as is the call of FS advocates for the State to regulate trade or to open markets for small-scale producers. The Cuban State controls and regulates food prices and therefore it has the responsibility to resolve price volatility as it is the link between producers, consumers, and the market itself, as discussed in this research's National Workshop on Food Sovereignty (NWFS). For others, including Raul Castro, the issue is about expanding the private market

towards a scenario akin to market-socialism (Castro, 2010; Nova-Gonzalez, 2013b). The issue for the SAP's small- and medium- scale producers is an interrelated twofold situation; they produce under on a self-sufficiency basis to meet the State target contract with prices that are lower than in the private market, and at the same time they must enter into the private market to sell surplus to meet the State target. They enter the market facing unbalanced competition with, for instance, State enterprises, intermediaries or with enterprises managed by foreign investors, in this case as in any other nation-State. Moreover, although the new law on commercialisation allows producers to sell into some tourist outlets, not everyone has the means to access these (Interviewees, PL13, PL11). This is partly a problem of social connections and the capability to produce what the outlets require. As Pratley and Dodson (2014) have critiqued in alternative food network initiatives, this is an issue of power to access niche markets.

Some SAP producers prefer to sell to the State for a secure price (Interviews, NWFS). This means producers are connected directly to the national food procurement plan but with fair and secured prices as well as having an appropriate system to collect and transport food. This is somewhat similar to what FS and agroecology advocates suggest as a mechanism to support small-scale peasants (Rahmanian *et al*., 2016; Wittman and Blesh, 2017). In principle this already exist in Cuba, however its management under the State enterprise is not working, as discussed in chapter 5 section 5.3. In these circumstances, producers are calling for the State regulatory powers to resolve the problem. The question is, why this is not happening, bearing in mind that commercialisation is a historical problem (Nova-González and Figueroa-Alfonso, 2018). During the debate in the research's NWFS as well as in the contemporary news in the country, the answer to this question was left hanging. Moreover, there is another question, namely why the national debate around food prices does not include the fact that imported food is sold at higher prices in shops where almost no national food is sold? From a political economy and a relational perspective, there is a contradiction at the heart of the State-civil society structure. The State has both political and economic powers, therefore the capital-nexus is evident, in contrast with a capitalist setting where this is not made apparent (Tilzey, 2018b). Thus, having a system in which small- and medium-scale producers and non-producers are not protected, while running private markets in which the State is both regulator and trader, suggests that there must be a capital accumulation mechanism. This can be related to Peobraskeky's concept of 'socialist primitive accumulation' (Kay, 2009; Akram-Lodhi and Kay, 2010a), where the State has producers working on a self-sufficiency basis and is buying their produce at lower prices, then competing with them in the market, this with the aim of investing in industrialisation. On the other hand, this situation can be related to an old version of capital articulation within Statist forms of socialism (Tilzey, 2018b), whereby the

campesino/as are inserted into the mixed approach to agriculture and the market as contributors to capital surplus, without investment and/or having full recognition, while investment goes into other more 'efficient' sectors. As producers confirmed, recognition tends to be generalised under the State-led cooperative system, in that, the success of *campesino/as* is often attributed to cooperatives, and thus their identity and role in agrarian capital generation is underplayed (Interviewee, PL1). Their point was not to critique cooperatives per se, but rather that this is perceived as way to control producers. From the perspective of the classical agrarian question, the role of producers in generating agrarian capital is obscured, therefore so is their economic and political agency (Lenin, 1975).

The other element to bear in mind in the issue of the market is that, as stated at the beginning of this discussion, the State is not free of classes or fractions, not even in a proletariat socialist State. The question is what is the fraction or sector within the State that manages the markets? The response is about power again, for instance in fiscal management, as the sectors with access to the fiscal budget and its management have more power to effectively distribute wealth (Webber in McKay, 2020). This topic is fundamentally related to the consolidation of the State through the reaffirmation of some fractions within the State, rather than a process of 'withering the State away' as purposed by Marx (1970). Finding out more about this topic in socialist settings is arguably an issue of FS. It relates to the critical issue of building Stateless governance systems and realising that the State is the problem rather than the solution as discussed in sections 6.3 and 6.4 below.

At the other extreme of the market issue is the act of buying food, in which producers and non-producers meet under the same conditions; that is the need to have purchasing power - a situation similar to any other capitalist country. The difference with socialist Cuba is the redistribution of wealth through the socialist distribution system, in which the health, education, transport and food ration systems are subsidised, which buffers individual expenditure. Having said that, the food ration system is being phased out and this means that people must spend more to access food. As explained by all research participants, the ration system is not enough to meet their food needs, and they find food to be expensive and not easily accessible. This is confirmed with the official policy that has been rolled out since 2011 and ratified in the Policy Guidelines in 2017 regarding the elimination of "gratuities and subsidies, including the subsidisation of food via the '*Libreta*' [or ration book]" (Partido Comunista de Cuba, 2017b; República de Cuba, 2019). The reduction of free access to food and other services is introduced in the new national Constitution as the "socialist distribution principle" in the form of "from each according to their ability, to each according to their **labour**" (2019:Art65), an alteration of Marx's socialist principle "From each according to his ability, to each according to

his **needs**" (1970) [Bold by author]. Moreover, the emphasis on work or labour rather than needs, is also stressed in the food security concept (introduced for the first time), in which the emphasis is that each has to work to secure food, while some forms of support will be maintained (República de Cuba, 2019:Art77). There is a certain paradox in that while subsidies and the ration system are being eliminated, State jobs are being lost, and these newly unemployed people are expected to find jobs through the new policy of allowing self-employment and the possible opening of non-agricultural cooperatives, as stated by Raul Castro (2016). Meanwhile, people who want to access usufruct land - which could be another way to replace the jobs lost - must have the means to put the land into production and be self-sufficient. Hence both producers and non-producers alike must enter the market not only for food but also for labour.

From this section on Human-to-Human relationships in the 'social being' and its relation to Pillar Two 'Support for Food Producers' and Pillar Three 'Localising Food Systems' it is evident that they depend on the world view stated in Pillar One. This points to the mixed approach to agriculture and the State reforms which have created growing differentiation among peasants-producers. Small-scale food providers are in competition with more powerful actors and with less agency to transform power relations. This is illustrated in Figure 6.1 with Pillar Two shown within a solidified green circled. In contrast Pillar Three shows some signs of flexibility and open relations, shown as a broken circle and interconnecting lines between Pillars and the entire 'social being'. This is because of the potential of producers' multifunctional livelihoods and their mobility across the country which can be a force for change when combined with other Pillars, as seen below. These issues of policy making, political agency and social organising among the SAP producers brings the discussion to the next plane of the 'social being', the construction of the Emergent Totality, the sphere of the institutional development, and thus policy making.

6.3 The Emergent Totality: institutionalisation and policymaking around the SAP and agroecology

The findings of the research discussed above provide reasons to argue that the SAP is showing and holding 'potential' to contribute significantly to a different path for the mixed approach to agriculture, not as an input substitution programmatic-based approach but as a systemic one - despite the obstacles and contradictions observed. The SAP has the 'potential' to readdress the old "Thesis of the Cuban agrarian question" (Rojas, 1978) and to contribute to mending the metabolic rift in its multiple dimensions and in doing so building FS. Arguing for this 'potential' does however not mean to confirm, for instance Clausen, Clark and Longo's

assertion that Cuba has mended the metabolic rift. Their argument does not stand up to critical review, for instance, that there was in Cuba “an organic agrarian reform which transformed land tenure and distribution outlets” (2015:20). This in turn has been used as evidence for further authors to build their claims (Schneider and McMichael, 2010) and contributed to obscuring the potential of the development of ecologically friendly agriculture in the Special Period and in the SAP. Furthermore, they obscure the contradictions that drive change in the country regarding the transition to a different food system.

The reason for proposing that the SAP holds the ‘potential’ to contribute to resolving problems with the food systems in Cuba, rather than the solution itself, is because the SAP and its producers are in the middle of a key ideological contradiction. This is the worldview that *campesinos* are backward or that their mode of production is not efficient or useful for socialism and that large-scale agriculture is the basis for development, as stated in the historical ‘Cuban agrarian question’. This worldview permeates institutions and policymaking, that is the production and reproduction of social relations/institutions or the Emergent Totality of the ‘social being’. The way in which agroecology and FS are institutionalised reflects on how they are lived by people and inserted into the process of policymaking or the other way, how a policy is disseminated.

Cuban leadership, and the Cuban people overall, have crucial knowledge, experience and resources to effectively turn the ‘potential’ of a programme such as the SAP into a key contributor for the resolution of the metabolic rift. This, however, relies on how the field of governance is constructed, in other words power for self and collective governance at the local level, as discussed in chapter 5 section 5.5. As expressed by producers, this is their desire to have autonomy to decide on matters regarding their *fincas* while being supported. The ‘potential’ lies in addressing the contradictions in the mixed approach, based on the neoliberal version of sustainable development that was adopted by Cuba in 1992. This includes fully re-considering the role of small- and medium-scale *campesino/as* as key social, economic, and epistemic actors undertaking sustainable agriculture in the form of ecologically friendly agriculture and endogenous knowledge production.

This reconsideration extends to how the experience and knowledge of the changes during the Special Period are diffused in the mixed approach to sustainable development and the agency of actors in the State-civil society structure in Cuban socialism. As discussed in chapter 4, urban and suburban agriculture in the Special Period set a precedent to drive the path of change. It was embedded at the grassroots level, then institutionalised in the Urban Agriculture Programme. However, although it had the potential to be a transformational change, history

has shown that the Special Period was not enough to transform the leadership's vision of sustainable development and the mixed approach to development, neither among other actors in the State-civil society apparatus nor the population in general. As soon as there was access to currency, the country slowly reengaged with the industrialised system, as stated in the NWFS.

The crisis in 2008 shows that some of the reforms, such as the creation of the UBPCs through the redistribution of land; the official creation of the Urban Agriculture Programme, the opening of the *campesino/a's* markets, attempts at decentralisation, alongside the continuation with the *Polos Productivos,* are not resolving problems across the food system. The reforms taken since the Special Period are administrative and economic but without touching political structures, for instance by adopting a devolved authority and management strategy rather than decentralising administrative functions of decisions taken centrally (Fisher, 1998), or as an attempt to a confederative form of production and governance as pursued by anarcho-syndicalists in Cuba (Dolgoff, 1977; Fernández, 2001), or as a fully confederative, localised and self-sufficient form of government (Bookchin, 1990), or in a Marxian view effectively taking socialism as a form of transition rather than an static situation (Marx, 1970). This is supported by the comment of a research participant about the decentralisation to municipalities which implement central decisions still taken centrally (Interviewee, SG30). It also relates to the comments of some producers interviewed in this research about the requirement to be part of a cooperative to receive land in usufruct, as a form of control. This issue has also been raised by Cuban authors regarding the need to enhance meaningful independent cooperative creation rather than a State-led initiative (Entrevista-Pineiro-Harnecker, 2013).

The relevance of policy making or the need for political will to make agroecology or FS possible, is often overestimated without due consideration that policy making and political will is not neutral. The role of the State and the power tensions between State fractions is not unconnected to the circumstances in which agroecology is inserted into the State structure with the SAP. For instance, the adoption of agroecology by ANAP while it remains the State organisation supporting the decision adopted in the Cuban agrarian question to convert the peasantry (discussed in chapter 4). The impact of ANAP on how agroecology and FS is developed in the country is fundamental, as the association is the official representative of the peasantry in the country, and it is a member of LVC international. From a global perspective of the conceptualisation of agroecology, these are the political aspects of agroecology that are not evident in the narrative which asserts that agroecology needs to be political by linking it to social movements (Rosset and Altieri, 2017). These power dynamics show that even if not stated, agroecology is inherently political in both capitalist and socialist nation-States,

particularly in Cuban socialism in which centralised power and focus on leadership is stressed. In this sense decentralisation is only a reformist approach that does not touch the overall power of the State which in socialist terms needs to cease to exist and transition into new forms of governance. At the same time this poses the problem of how this transition takes place within the global para-State hegemony and under the US blockade. The autonomy, or otherwise, of entities such as the cooperatives is a key factor, as they represent the possibility of having real self-governance and steps towards a new vision of socialism in which collective governance is built from below in a real sense rather than being a confirmation of the leadership's decisions as happens with the process of consultation on matters that have already been decided by the leader.

This is of utmost importance in relation to how FS and agroecology have been officialised, both have been funded and supported by the FAO and its ideological positioning with the acquiescence's of the Cuban leadership and hegemonic scientific community. In this context, a critical issue is who exerts power in policymaking and building official institutions or conceptions of reality, and how they do this, in other words representations of what is socially appropriate or not. This relates to how hegemony is constructed within the State-civil society structure and by default how knowledge is constructed, validated and disseminated. The fundamental basis for this in Cuba is science and technology, as previously described, and the SAP also carries this out to the letter in its Guidelines (MINAG-GNAUS, 2009). Reflecting on the analysis of the term agroecology in the international arena and specifically on agroecology as 'building/built on traditional knowledge' (presented in chapter 2), there is a general understanding among producers in this research, that most of the agroecological practices were used by traditional campesinos; 'it was how agriculture used to be'. This is the expression used, even by those participants who worked in cooperatives in which agroecological practices were not used as standard.

This research finding research resonates with concerns raised in the arguments presented in chapter 2 around knowledge construction and homogenisation in the global conceptualisation of agroecology. This is also discussed in chapter 5 in the FS Pillar 'Building Knowledge and Skills'. It highlights the practical implementation of the worldview underpinned by the ideological view of science and technology as the drivers of modernity and progress as a unilinear process and linked to the Western view of modernity (Haraway, 1988; Rivera-Cusicanqui, 2012; Rivera-Cusicanqui and Sousa-Santos, 2014). It also exposes power relations that the latter creates at the time of accessing resources and validation of knowledge production. These power relations are stressed by differentials between producers related to the mode of production used, land size, labour and capacity to hire labour and, connections

with institutions providing support.

The formalisation of agroecology as practices and technologies, such as agroecological pest control approaches in a programme, while carrying on with the mixed approach to agriculture, can be related to an extent to what some FS advocates have argued against, namely the co-option of agroecology (Pimbert, 2017; Rosset and Altieri, 2017). Agroecology is not adopted as a transformational aspect or model of production, nor in its demand for diversity at all levels - not only in production, species or in ecosystems but also in forms of governance structures (Nyéléni, 2007) - in other words as part of the entire FS framework. This is reflected in the adoption of agroecology within the SAP. It contrasts the tendency to generalise that in Cuba, agroecology and FS are themselves policy or are supported by other policies that might have resonance with agroecology, for instance the 'protection of the environment' narrative. Those generalisations contrast with the view of some of the research participants as well as with Cuban authors who pondered why the country has not expanded on the experiences and successes of the ecologically friendly agriculture achieved in the Special Period.

From the perspective of a technological strategy, the question would be around the type of mechanisms required for a technology to be embedded or adopted among the projected users. This is somewhat akin to the point in Cuba and internationally that peasants need to be trained in agroecology. The response to this question can be through posing another question and reflecting that key areas for the appropriation of technologies are the producers' own identity and culture. The questions then are: where did agroecology come from, who were the drivers of it and who lives it? These questions are crucial as they show the trajectory of agroecology in the country and what is taking place in policymaking and institutionalisation at the current time. This research has answered these questions by presenting the precedents of the SAP and the epistemological vacuums or negation of social actors (de Sousa-Santos, 2012), (for instance the negation of the small-scale mode of production as backward), and through exploration of the mix of knowledge production within SAP producers at the present time.

From another angle, connecting policymaking around agroecology and FS is a matter beyond technicalities. It is about freedom and power to decide, both at an individual level and as a nation, relating FS to national sovereignty. The use of FS in the official narrative, and in the media in 2020 when President Diaz-Cano announced a new FAO-EU funded project for food security and nutrition, was not in any way - according to the media or the FAO announcement (FAO, 2020) - referring to building decision making amongst producers or supporting them or their social movements. Contrastingly, the power of para-State institutions is made evident again by the way the sustainable development discourse was rolled out in Cuba with the

support of the UN programmes and institutions such as the FAO and the World Food Programme, and the support of the United Nations Development Programme to provide financial and technical assistance for international agroecologists to run trainings in the country, as analysed in chapter 4. Now a new project on FS and nutrition is paving the way for making policy about FS (FAO, 2020). The question here is whether the views of people about FS, for example as expressed in this research, will count in policymaking. This leads to the following question, namely, can policy create or develop FS-Agroecology, or is it an individual and collective Transformative Praxis? or can it be both without the latter being co-opted by the State and global para-State hegemony?

The discussion of the Emergent Totality of the 'social being' and its relation to FS in its entire ambition, that is in its Six Pillars, points towards one issue, namely the consolidation of the power of the hegemony of the State under the PCC and its leadership. This is shown in the consolidation of the forms of governance within the State and its hegemony shown in Figure 6.1. as the solid green circle around FS Pillar Five. The flexibility shown in Pillars Six and Four (with the broken circles and lines) - less in the latter given that the State reforms are spreading towards areas once won by the revolution e.g. reduction of social welfare - evidence again potentials that exist within the SAP and their producers as long as contradictions are identified and addressed. The agency of SAP producers to drive change is further discussed below, along with the issue of whether SAP is a movement or a governmental programme in which producers have little or no autonomy and decision-making power.

6.4 Transformative praxis: individual and collective agency

Cuba's official adoption of agroecology detached from FS and its focus on technological aspects of farming, is not different from that in the international arena, as discussed in chapter 2. This detachment is shown in the creation of the SAP as well as in the understanding of research participants about the term agroecology. Its roots are in the scientific community and not in social movements of producers or/and non-producers. This turns the discussion to the role of social movements in the construction of FS (Holt-Giménez and Shattuck, 2011; Henderson, 2017; Trauger, Claeys and Desmarais, 2017), and leads onto the issue of the reproduction of narratives of power in the field of governance through co-option of individual and local narratives. A producer's opinion that urban and suburban agriculture was previously a movement and now is a government programme, illustrates the capturing of a concept charged with powerful meaning in the imaginary of the people. This is reflected in the fact that the SAP has on the one hand, the legacy of urban agriculture structures and the success of producers, and on the other hand the sanctioning of the leadership, albeit without the power

of producers or non-producers who were not included in the decision-making structures. This is reflected in the programme's hierarchical structure, and that people refer to it as the provider of inputs or services, if they have knowledge about it at all (Interviewee, PC1, PC2).

Breitbach (2007), provides experiences of how individuals manifest the power relations and class conflicts in the appropriation of spaces in order to live their lives and livelihoods. These show that the field of governance crosses the entire food system, from the decision on the type of food to how it is going to be attained and the creation and re-construction of spaces, in other words they create culture and society through food systems. This is evidenced in opinions of research participants, who despite not being in an organised social movement, enact their agency in the day-to-day activities, for instance buying food '*por la izquierda*' - the colloquial way of saying 'outside of what is the norm', such as beef because it is not available or affordable in the official outlets. At the same time, they are willing to defend the Revolution and the role of the State, as stated in the NWFS "the State has to regulate this [prices and markets] otherwise the Revolution is lost" (see Appendix 5.1). The appropriation of the SAP's structures in whatever form producers can, and the development of the multifunctional *campesino/as* livelihoods, are local forms of Cubans 'walking the talk' of FS-Agroecology within the socialist system. It is about navigating back and forth within the State-civil society structures to maximise reforms and windows of opportunity, whilst banking on what the Revolution has built, for instance the high level of education. To an extent, science is now being appropriated by *campesino/as* in its margins (Pimbert, 2006). How much these bring change under the political and cultural system in Cuba without the existence of autonomous or independent social movements, as forces of change from below (della Porta, 2009; Henderson, 2017) and bearing in mind the history of ANAP, as a hegemonic State force, is part of the unfolding of the potential of small and medium-scale producers, not as economic subjects but regaining their self-governing power or the Transformative Praxis, and addressing the contradiction of the State as mediator and capital accumulator.

The bottom line of comments from participants such as "food sovereignty is being able to decide what you want to eat and to be able to get it", "to have land is not enough, you need to have freedom to decide how to produce from the land", "we are not for making profits at the expense of people" and "We sell at low price; we don't donate otherwise people will not appreciate it" (NWFS, Interviewee, MIS2) is the call for people to have a balanced say in what is best for oneself, either as a non-producer or as a producer, and to be able to protect what has been achieved collectively. This brings to the fore the key political fact about the development of FS-Agroecology in Cuba, that it is about having access to land, which has been secured not only because of the leadership's will to redistribute some land at this time,

but also because the Revolution, as a collective endeavour, took over political and economic power so that the majority of the economy was nationalised and above all, regained control over the majority of the land and put it towards the collective good. In this scenario, what SAP producers call for was not necessarily land - or land titles - but for the next steps in the Revolutionary transformation, in this way addressing internal forces as well as foreign factors such as the US blockade and para-State institutions' neoliberal agenda.

The Cuban Marxist-Leninist socialism in this respect has rooted contradictions which are connected to the fact that the field of governance (self and collective) is critically controlled by the State-leadership and its restrictions for the development of autonomous social movements or other social forces that critique the status quo, for instance reflected in the suppression of libertarian socialists (Fernández, 2001). The State control over the governance field is illustrated in Figure 6.1, shown as the ET purple circle overtaking the Transformative Praxis. This means the takeover of all the other planes of the 'social being' by the Emergent Totality - that is social relations and institutions. Moreover, the administrative reforms pre-determined by the leadership, pose serious concerns regarding effective support to small- and medium-scale food producers, halting growing differentiation and securing jobs and food for people – this in the context of increased reduction of social welfare and the expansion of the market-socialist strategy (Castro, 2010, 2017). Bearing this in mind, it is argued here that the contribution of the SAP to FS is contained and evident in the way past contradictions have been projected into the present under State reformists and pragmatic strategies rather than being transformed altogether, as has been presented and discussed in this research. In this respect, the SAP's contribution towards FS is still a potential that depends on how the Transformative Praxis is unlocked by social forces (individually and collectively) within the remits of the State hegemony, in the form of counter-hegemonic or sub-hegemonic forces within the Polanyian double-movement logic (Holt-Giménez and Shattuck, 2011), or if, on the contrary there is ambition to develop new paths for anti-systemic alternatives towards FS as reflected in section 5.5.1.3 in chapter 5.

Following this discussion and to close this thesis, the most relevant dialectical points of change, contradiction and connection of the SAP development and its contribution to FS in socialist Cuba, explored throughout the research and discussed in this chapter, are now succinctly presented in the next chapter, the conclusion.

Chapter 7 Conclusion
The Suburban Agriculture Programme and its Contribution to Food Sovereignty-Agroecology in Socialist Cuba

The final step in the dialectical '*exploration of the development of suburban agroecological food and agriculture systems and its contribution to food sovereignty in socialist Cuba'* is the drawing of conclusion to this research. This presents the main dialectical relations - juxtapositions, connections and contradictions - driving the SAP and its contribution to FS in Cuba. These have been identified through applying the research FS-A-D analytical framework, for the analysis of the relations between the precedents of the SAP and its current condition, and how these provide insights into the future. As such the conclusion highlights the SAP's actual and potential contribution towards FS.

This research found that the SAP with its multipurpose design and ecological friendly modes of production as part of the mixed approach to agriculture in the Cuban socialist Socio-economic model has a twofold potential to contribute to FS. Firstly, the programme shows actual positive steps towards building ecologically friendly agriculture across the territory rather than furthering urban and rural divisions. Secondly, the programme reveals rooted historical and recurrent contradictions. Therefore, from a dialectical perspective the contradictions encapsulate the seed of what could contribute to the 'becoming' of FS in Cuba, thus the path to unlock transformative praxis.

Contrary to claims that Cuba has adopted FS as policy (Rosset, 2009; Rosset in IPES-Food, 2018; Menses, 2014) or that the development of UAP and its legacy for ecologically friendly agriculture is aiming per se towards FS, the analysis of the SAP in this research has found that there are no narratives or stances within the Cuban nation-State, (for instance its government or a collective, e.g. ANAP, social organizations or cooperatives striving for FS in a holistic manner) that address key FS values in an integrated manner as proposed within the international FS framework, with its different visions-perspectives existing within the LVC and allies (Holt-Giménez and Shattuck, 2011; Bernstein, 2013; Schiavoni, 2013; Edelman et al., 2014; Alonso-Fradejas et al., 2015; Nyéléni, 2015; Henderson, 2017; Trauger, Claeys and Desmarais, 2017). For instance, counter-hegemonic radical transformation or perspectives seeking changes in the State within reformist approaches in a Polanyian double movement fashion (Holt-Giménez and Shattuck, 2011) or proposals to build FS within different paths to socialism such as non-Statist forms of governance (Dolgoff, 1972; Bookchin, 1990; Wallerstein, 2002; Gibson, 2019) or other forms of communal governance (de Sousa-Santos, 2010).

The research showed that the most important contradiction lies in the institutions or the Emergent Totality overtaking other planes of the 'social being', and above all overshadowing the Transformational Praxis. This finding is related to the control of the 'social being' by the Cuban State institutions with its centralised hierarchical form of socialism, which defines the world view in which the SAP is embedded. This is illustrated in Figure 6.1 in the discussion chapter, which graphically depicts the analysis of the SAP with the FS-A-D and shows the contrast between the FS Pillars that are consolidated and strongly impacting others and its relation to the 'four-planes of the social being'.

This chapter first presents the conclusions regarding the development of suburban agriculture and its relations to agroecology, then considers the twofold potential of the SAP to contribute to FS in socialist Cuba: the contribution of the SAP as a multipurpose programme, followed by synthesis of the contradictions according to each of the six FS Pillars. Finally, it highlights some implications of this research for future research and practical initiatives to build food sovereignty.

7.1 The development of suburban agriculture and its relation to agroecology

Understanding the development of agroecological suburban food and agriculture systems and their contribution to FS in Cuba depends on the notion of agroecology, and its connection to FS, disseminated in the country, thus also relates to the historicity of these concepts internationally. Based on dialectical analysis of the development of agroecology and FS it is argued here that the historicity of the concept of agroecology engenders the negations of epistemic subjects, with its emphasis on technical aspects and on the productive element of food systems (Altieri, 1995; Gliessman, 1998; Francis et al., 2003; Wezel and Soldat, 2009; Wezel et al., 2009). The historical origin of agroecology neglects the stratified nature of food systems, despite scholars presenting the evolution of agroecology from the perspective of food systems (Gliessman, 2018; IPES-Food, 2018). It is argue in this research that agroecology was from its inception a concept exposed to co-option by the mainstream official discourse, against the arguments that agroecology is recently being co-opted (Rosset and Altieri, 2017), this research has evidenced that agroecology was setup as a technological tool focused on the biological aspects, rather than addressing its full socio-natural ontology and epistemology. This resulted in, for instance, agroecology not being connected to political struggles that had already been taken place among Indigenous and peasant communities which were directly related to the origins of the term agroecology, nor was it related to the development of the FS framework. It is only later, by the assertion of LVC, that agroecology became a part of the FS (Nyéléni, 2015).

Agroecology detached from FS or political struggles was disseminated in Cuba by the same scholars (Miguel Altieri and Peter Rosset) developing the concept internationally (Rosset and Benjamin, 1994) with the support of UN bodies, opening the space for agroecology to be adopted as a technical tool and co-opted by State reformist approaches. As such, agroecology was originally disseminated as scientific knowledge through educating officials, researchers, students, and producers with ecologically friendly approaches to agriculture during the Special Period. This contributed to two contrasting outcomes: opening space for application of different technological perspectives to the monocultural and largely industrialised agriculture, and on the other hand, neglecting fundamental political and social problems related to the technological problem. Thus, the introduction of agroecology in Cuba, as elsewhere, was detached from a radical and systemic approach to transform food systems. In this context, agroecology was later adopted in the Cuban official narrative as a tool for input substitution. The use of the term organic, which was already pushed for by independent researchers-producers and permeated the imaginary of Cuban people in the development of urban agriculture, was replaced by 'agroecological practices' in the official setting of the SAP as a top-down decision (as evidenced in chapters 4 and 5).

The adoption of agroecology in the SAP as agroecological practices - as intended by international agroecologists - and its dissemination by ANAP within the *Campesino*-to-*Campesino* methodology in the rural areas (which relates to SAP producers) does not propose changes in the hierarchical and controlled style of development or supporting small-scale food providers' forms of governance (Nyéléni, 2007; La Via Campesina, 2008), nor is proposing that FS and agroecology - as a unity (Nyéléni, 2015) - be the mainstream strategy in the country. A key issue evidenced in the dialectical historical analysis of this research is that although agroecology is more often than not referred to as a science that builds on traditional knowledge, in Cuba there is no evidence that ANAP or other social actors have contested the historical official decision that traditional agriculture was backward and needed to be modernised, or, in other words, a negation of a social subject (de Sousa-Santos, 2012) (see chapter 4 for discussion about the Cuban Agrarian Question and its final resolution). Thus, agroecology was adopted but there is no evidence of efforts to recognise, value and/or mainstream *campesinos'* traditional knowledge in its fullness. The ambition in this respect is to recognise that producers have contributed to agroecology, as argued by a member of ANAP. Furthermore, although ANAP, adopted agroecology in 1991, it was only in 2009 that agroecology was adopted in an official agricultural programme - that is the SAP. The insertion of agroecology into the policymaking connected with the creation of SAP is characterised in this research as a government led, individual programme approach. That is, agroecology is used in the SAP as a tool or practices but not as a systemic approach to the entire national

development strategy. This fully reflects the way agroecology was introduced in the country and the fact that there was no social force driving or defending the identity of the peasants and their traditional knowledge on which agroecology is assumed to be based, and which is a FS fundamental premise. As far as the evidence from this research shows, the so-called political aspect of agroecology (Rosset and Altieri, 2017) was not manifested in the normative-official documents nor in the views of the producers and researchers who knew about the term.

This research has also revealed a widely disseminated misconception, namely the assumption of the default connection of agroecology to socialism (Bellamy-Foster, 2008; Clausen, Clark and Longo, 2015). That is based on assumptions that there is only one path to socialism - the Marxist-Leninist path - and that agroecology is by default compatible with this type of socialism, thus, contributing to the historiographic gap regarding libertarian socialism, for instance the Cuban anarcho-syndicalism developed since 19th century and repressed by the Marxist-Leninist Cuban State. A Stateless socialism proposed by libertarians in Cuba was already working towards some form of free campesino cooperatives and decentralised governance system. This type of socialism has not been associated with studies of agroecology or FS in Cuba and what would be its potential.

Departing from the dialectical analysis of the concept of agroecology and FS this research adopted agroecology as part of FS as put forward by LVC (Nyéléni, 2015). Moreover, FS-Agroecology is perceived as an ontological stratified reality reflected in the concept of the 'four-planes of the social being' (Bhaskar, 2008) in the FS-A-D.

7.2 The SAP multipurpose and the adoption of agroecology in the socialist Cuban system

The SAP's multipurpose design encapsulates the progress towards ecologically friendly food systems, with its traditional multifunctional family producers in *fincas* associated with cooperatives and the coupling of agriculture and small-scale industry locally and nationally. The SAP carries the legacy of key developments in the country but because of the mixed approach to strategy, there is risk of losing its importance. The SAP contains the development of biological controls initiated for commercial crops in the 1950s, it maintains the UAP's legacy (Table 7.2 presents a summary of UAP's legacy to SAP and its relation to FS-Agroecology) embedded in the national network of State institutions supporting national agriculture, and although juxtaposed and even in contradiction, it also has the leadership interest to mix these elements within the national development strategy.

Table 7.1: Summary of UAP's legacy to SAP and its relation to FS-Agroecology

FS-Agroecology	Before Urban Agriculture Programme	Urban Agriculture Programme (UAP)	Suburban Agriculture Programme (SAP)
1. Working With Nature			
Worldview – Approach Sustainability, Diversity and Priority to small-scale food production	Mixed approach to agriculture with emphasis on the Marxist-Leninist scientific-technological approach to development and the principles of the UN sustainability development concept (economic, environmental, and social sustainability) with an emphasis on production while respecting the environment. In this approach there was initial experimentation with diversification of agriculture, creation of the Centres for the Reproduction of Entomophages and Entomopathogens - biological controls (CREEs). (there were 280 CREES by 1991), the Stations for Territorial Plant Protection and the Integral Pest Management. The experimentation with diversification was discarded and instead the focus continued to be monoculture at large industrial scale.	UAP is embedded in the mixed approach to agriculture with an emphasis on low input agriculture and input substitution as a response to the Special Period crisis, involving diversity of producers as well as forms of production.	The SAP is also embedded in the mixed approach to agriculture. It inherits the UAP's low input approach. However, this approach is not mainstreamed but maintained as an input substitution to reduce investment and generate capital.
		Urban ecologically friendly agriculture, referred to, interchangeably, as organic agriculture, permaculture and small-scale traditional campesino agriculture, became a real possibility to develop sustainable food systems.	Within people's narratives the legacy of the UAP remains as agriculture without chemicals and still associated with organoponics. Permaculture is consolidated through the Foundation Antonio Nunez Jimenez for Nature and Man (FANJNH) and some producers equate this to agroecology.
		The organoponic is consolidated as a Cuban technique - promoted by some key political figures such as Raul Castro, army officials and institutional researchers.	The organoponic technique is a strong legacy from UAP. Organoponics are most common in urban areas, however they are still part of the SAP, and can operate alongside semi-*tapado* units or in *fincas*.
		The official narrative adopts the term organic (particularly associated with organoponics).	Agroecology is adopted officially as an input substitution strategy, specifically referred to as agroecological practices and agroecological pest control. Agroecology is not a term generally known by producers, contrasted with organic, permaculture, campesino traditional ways of farming which are associated with urban and rural agriculture. Agroecology is mainly focused on technological aspects of farming. The term is generally not known by people involved in food processing, commercialization, or non-producers.
		Increased use of organic matter, biological controls (previously used in commercial crops), botanic products for pest control, and crops association particularly in organoponics and home gardens, and rotation of crops in suburban production.	Widespread use of biological controls, as part of the SAP's subprogramme 'agroecological pest management'. Despite the success of this in the UAP and SAP, the number of CREES has been reduced from 280 in 1991 to 208 in 2016. However, the SAP is expected to build one CREE per municipality.
		Agrochemicals are banned in the UAP.	There is no ban on using agrochemicals.
			There is no commitment to invest in transiting out from high inputs, nor to move toward agroecology as a systemic approach despite the banning agrochemicals in organoponics within UAP.
	Involvement of small-scale rural producers to support the National Food Programme and as an example to workers in State enterprises, just before the Special Period.	Increased recognition of small-scale food producers.	There is a general awareness of the role of small and medium scale *campesino/as.* They have become part of the official strategy to reduce investment and to generate capital.
2. Valuing Food Providers			
Who are the food producers?	Workers/producers/*campesino/a*s in State enterprises, cooperatives, mixed capital enterprises and some independent small-scale *campesino/as*	Producers, *campesino/as* and workers producing in small-scale units (agriculture, food processing and aquaculture), large-scale State enterprises and cooperatives.	Producers, *campesino/as* and workers producing in small- and medium-scale units (agriculture and food processing) and large-scale State enterprises and cooperatives.

Forms of production	There is still some traditional small-scale agriculture in rural and suburban *fincas* and *parcelas*.	Coexistence of small-scale ecologically friendly food production units – *patios*, *parcelas,* micro gardens, intensive gardens, suburban *fincas,* organoponics and State/institutions *fincas*.	Coexistence of small- medium- and large-scale production in *parcelas, patios,* cropping in *semi-tapados, organoponics,* intensive gardens and *fincas* managed by individual producers - independently and in cooperatives, cooperatives and State enterprises under ecologically friendly agriculture, a mixture of this and high input production and production under Integrated Systems (SIGA) - the latter more common in rural areas. In addition, industrial production under foreign investors' management.
	Primarily State enterprises, cooperatives under conventional industrial production and some independent traditional *campesino/as* (in *parcelas, fincas* and *patios*).		
	Large-scale high input production in State enterprises and cooperatives - Hydroponics and Zeoponics.	Some Hydroponics are still maintained.	
Land tenure	79% of land is owned by the State following the first and second agrarian reforms.	79% of land is still under State control, although land tenure changes under Land Redistributions Laws provided the right of use land indefinitely (Decree Law 125/91; Resolutions 356/93 and 357/93; Decree Law 142/94). These laws expanded access to land for small-scale food producers.	Land ownership remains 79% under State control. Land tenure in suburban areas is made accessible to individuals, members of cooperatives, cooperatives, State enterprises and foreign enterprises under the second wave of Land Redistribution Laws that provide the right to use land with a definitive term: Decree Law 258/08, Decree Law 300/12 and Decree Law 358/18.
Producer's access to services and support	National network of institutions supporting conventionally led agriculture	The UAP's agricultural producers are supported by the network of institutions already created for all agricultural programmes.	Since the UAP's creation there has been growing differentiations between producers regarding access to inputs, labour, and the market.
			The network of institutions provides support to all producers; however, land redistribution states that they must have the means to put the land into production.
		The State creates *Granjas Urbanas* and CTAs to support the UAP	Additional to Granjas Urbanas and the CTAs, the State creates another State enterprise, the Basic Enterprise Unit or UEB, to manage individuals receiving land and to provide support, for instance tools or training.
			It is expected that each municipality has its own workshop to tame animals for farming/transport and repair tools, a finca for seed production and a CREE.
3. Localising Food Systems			
Mending the rural – urban division	There is strong division between the urban and rural.	Urban and suburban food production and distribution focused on the urban locality (the barrios).	The policy which created the SAP focused on the suburban area, however practically food systems are developed across the territory (municipalities and national). The SAP is aimed at attracting urban people to work in agriculture to respond to a systemic agrarian/labour issues and address agrarian problems (lack of labour and excess of land) and urban (lack of employment and food). There is no relocation of people on suburban land as their homes but as workers in production units.

Multifunctional agriculture	Urban people are brought to the countryside to work in rural State enterprises within the National Food Programme, supported with the creation of rural villages near the State enterprises.	The UAP is designed as a multipurpose programme, including 28 subprogrammes: production (farming, small-livestock, aquaculture), small-enterprises, ecoservices, commercialisation, scientific and technical support.	The multipurpose approach initiated in the UAP is expanded and consolidated in the SAP. It continues with all subprogrammes in the UAP, apart from aquaculture which was excluded. There are currently 31 subprogrammes. The following were added, animal health, agroecological pest control, semi-protected organoponics and operations and control (management).
	Creation of the first campesino markets (1984)	Re-opening of campesino markets in 1994. Commercialisation is primarily on a local basis, for instance at organoponics or distributed to social welfare systems regulated by the State-led distribution system.	The commercialisation is under the State-led distribution system and the supply-and-demand market, where different actors and the State enter into competition. There is no system to differentiate food produced under the SAP (based on low input/agroecological practices) from that produced in another programme. The only way to differentiate is by distribution at the production unit for instance organoponic/finca/parcela gate.
		Producers are directly connected to national food procurement.	Producers are directly connected to national food procurement with lower prices than in the supply-and-demand market. They also can enter into the latter after meeting State targets.
4. Food for People			
Availability	Food needs are met with imported and nationally produced food (mainly through highly industrialised agriculture) and food aid.	The UAP's production targets are like those of the National Food Programme (before the Special Period) and the National Food and Nutrition Plan (just before the setting up of the UAP). This contributed to availability of food for self-consumption by local populations (in barrios) and urban centres (from production in suburban *fincas*) and export crops (as stated in the first Land Redistribution Laws).	The SAP targets are not only geared to producing food for people but also "to save combustibles and to maximize the window of opportunity offered by the granting of land in usufruct." (MINAG-GNAUS, 2009). The SAP provides food locally and nationally throughout the entire year. The programme offers diversity of food (crops and animal protein) that feeds the national population as well as providing inputs for priority industries, such as tourism.
	Creation of the National Food Programme and the Nation Food and Nutrition Plan.	The UAP exceeds targets, particularly for vegetables and spices, while creating employment (and hence incomes).	The success of vegetable and spices production in the UAP is maintained in the SAP, plus succeeding in other areas such as pork production.
Accessibility	Wealth distribution within the socialist wealth distribution principle "From each according to his capacities to each according to his **needs".** The social welfare system provides food rations for everyone.	Accessibility of food through UAP is guided by the socialist Marxist welfare distribution principle. Food produced in UAP units is easily accessible as it is directly distributed at the production units.	The socialist welfare principle in which the SAP is embedded has changed to "From each according to his capacity and to each according to his **work**". This relates to social reforms reducing social food provisioning through the State ration system.
Adequacy		The programme has the responsibility to meet the FAO nutritional levels. This is ensured at least in relation to vegetable production. Adequate food is produced under ecological principles with no chemicals allowed, and because it is distributed locally is more likely to be fresh.	As in the UAP, the SAP follows the FAO nutritional values and the targets according to SISVAN: the national system to monitor nutrition among the population. The SAP expands protein production in relation to the UAP.
			Due to the centralised distribution and commercialisation systems in which the SAP is embedded, there is no mechanism to identify which food is produced on an ecological basis, except for that produced in the organoponics.

People's agency to decide on their food systems	Decision-making around issues in food systems are primarily determined by centralised policy making.	From the initial development of the movement of people producing food it is assumed that there was more direct participation on matters regarding production and sharing of food among people during the Special Period. However, the UAP, as an official programme does not include direct participation of producers or non-producers in the design and management of the programme.	See point below
5. Putting Control Locally			
Central or decentralised governance systems	Policymaking, administration, and implementation of the mixed approach to agriculture is centralised in the PCC and leadership.	The UAP evolves from a grassroots movement of people (including new urban producers, established producers in rural towns and around cities, independent researchers focusing on ecologically friendly agriculture, national and international NGOs and some government officials), producing and processing food and promoting an ecologically friendly (or low input) agriculture localised near the sites of production.	The SAP emerges from the UAP as a separate programme, still under the hierarchical governance structure of the UAP. Policymaking is still centralised first under the State leadership and the Ministry of agriculture where the coordination group of urban, suburban and family agriculture (GNAUSF) is located. Programmatic implementation and monitoring are under GNAUSF and municipalities, while land redistribution is monitored both by the SAP and ANAP.
	The main goal is national sovereignty.	The food sovereignty framework is not included as a policy in the UAP nor is part of the grassroots movement narrative.	The food sovereignty framework is not included as a policy, nor it is linked to agroecology in the setting of SAP.
Food providers and non-producers' participation in decision-making / Social movements driving change	The international food sovereignty framework is not included as a policy.	The grassroot movement in the origins of urban agriculture is officialised first as the Organoponic Movement, then as the Urban Agriculture Programme under the Ministry and coordination group (GNAU), with participation of 17 institutions and 7 members of GNAU. Producers and non-producers' participation in decision-making is not stated in the UAP's structure.	The SAP as the UAP is a State-led programme. Producers and non-producers' participation in decision-making is not secured in the SAP's structure.
6. Building Skills and Development			
Building on the knowledge and skills of food providers and their local organisations	Building skills of food producers is based on science and technology, which applies to ANAP as the association representing small-scale campesinos in the country.	The UAP from its official inception includes a subprogramme 'science, technology and training', whose main focus is on transmission of agronomic-technical knowledge to *campesino/as*. This is supported by the national network of institutions developed since the winning of the Revolution.	The SAP continues with the 'science and technology' subprogramme as in the UAP, it receives support from the national network of institutions, including organizations such as ANAP and international NGOs.
		The UAP also develops from the work of independent researchers on organic agriculture, agroecology and permaculture. The initial work on agroecology by the Cuban Association of Organic Agriculture ACAO is adopted by ANAP through the campesino-to-campesino methodology, although focused on rural areas.	The Campesino-to-Campesino methodology and the Movement of Refence in the SAP offers a small window for producers' participation in decision making regarding trainings plans, which are determined by the coordination group of urban, suburban and family agriculture.
			The emphasis on agroecology as a science and as technological knowledge in the UAP also permeates the SAP's design.

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			The emphasis on agroecology as a science and as technological knowledge in the UAP also permeates the SAP's design.

Within the mixed approach to agriculture, this research found that the SAP is designed with a multipurpose aim, integrating agricultural production, food processing in small-scale industries and provision of ecosystem services. It extends across urban, suburban and rural areas connecting food, people and knowledge through the State's centrally planned system for production, commercialisation and social welfare, despite the fact that the programme is in theory to be implemented within a 4-5km radius around settlements, towns, and cities. The multipurpose design of the SAP resonates with the multifunctionality of the livelihoods of the SAP producers. This is what this research named the multifunctional *campesino/a* livelihoods managed mostly under diverse and integrated ecologically friendly production, including agroecological practices. Some are small-scale but most are medium-scale livelihoods engaged in production, distribution (some in food processing) for local and national food and ecosystem services provision and self-consumption. They contribute to the availability of foods that Cubans eat daily, namely beans, roots, tubers, pork and vegetables, as well as supplying the tourist industry. For instance, from 1994 to 2016 the aggregated output of the urban and suburban programme has exceeded its targets for vegetable and spice production, contributing 54% of the national production of vegetables as shown in Figure 5.4.2 in chapter 5.

The multifunctional *campesino/a* and the multipurpose aim of the SAP hold the past and the future in the present. This means that they are already showing that bringing the land back into production and producing food for national consumption is possible under small- and medium- scale ecologically friendly *campesino*/a production. This ecologically friendly agriculture includes diversity in knowledge and practices, evidenced by the terms used by producers to describe their *fincas* and *parcelas*, for instance organic, permaculture, low input, agroecology, traditional agriculture (or 'the way it used to be', 'working with the *merci* of nature') and/or integrated systems (crops, livestock and energy production).

As with the FS diversity of food providers, an important element in the SAP is small-scale industry, either as individual livelihoods or as part of the multifunctional *campesino/a fincas*. The small- and medium-scale food processing industry shows that the local has a manifold effect in providing food locally and nationally as well as building local economies through job creation linked to both industry and agriculture. This is the missing and vital link in mending the metabolic rupture that Karl Marx reflects on. It is about reversing the division between industry and agriculture, in the sense of large-scale agroindustry commodifying workers and nature. It is also a way of putting to rest Marx's infamous and decontextualised view of peasants as backward and driven by superstition and their model of production as not useful for socialism (Rojas, 1978), as adopted in the Cuban agrarian question.

The multifunctional livelihoods of small- and medium-scale *campesino/as* in the SAP shows that the peasantry is not a static category, resonating with reflections on the matter elsewhere (McMichael, 2006; Akram-Lodhi and Kay, 2009; Akram-Lodhi and Kay, 2010; Van der Ploeg, 2010). Despite Cuban Marxist-Leninist socialism's efforts to transform the peasantry into workers, with the process of differentiation that is growing, they continue to exist, reconstruct themselves and are a vital resource for the country. The SAP's small- and medium-scale *campesino/as* carry the knowledge and experience of traditional *campesino/as*, the legacy of the urban agriculture movement, transferable knowledge and skills from a highly educated population, and the knowledge co-produced/acquired from organic methods, permaculture and agroecology. They are one sector of the differentiated contemporary peasantry in socialist Cuba. They struggle at the crossroads of moving ahead with both an ecological friendly agriculture and the use of agrochemicals in a pragmatic manner according to changing conditions. They navigate strategically and relationally (Jessop, 2005) within the State-civil society apparatus, making science work both for them and with them as Pimbert put it (2006, 2018), and producing knowledge rather than only being trainees or receivers of technologies.

7.3 The SAP showing contradictions that could untap the potential to build FS in Cuban socialism

The successes of the SAP's multifunctional design and adoption of ecologically friendly practices, some of which were largely adopted by the Urban Agriculture Programme with its emphasis on organic and ecological friendly food production, cannot be confused or blurred to argue that Cubans had or have FS or that there was policy towards FS in the country before 2020 (FAO, 2020) as has been evident throughout this research. Moreover, the SAP successes' contribution towards building FS-Agroecology, as an integrated reality in Cuba, is critically constrained by entrenched historical contradictions rooted in the world vision adopted by the Marxist-Leninist socialist ideology mainstreamed by the leadership. These contradictions have been evidenced by applying the research's FS-A-D analytical framework and synthetised in the next six subsections under each of the FS Pillars.

7.3.1 FS Working with Nature / *Cuban sustained exploitation for socialist capital accumulation*

The worldview underpinning the SAP is the ideology of Cuban Marxist-Leninist socialism. This means progress and modernisation based on sustained exploitation of natural and human resources to build the socialist project (Rojas, 1978; Nunez-Jimenez, 1982; MINAGRI, 1996; Partido Comunista de Cuba, 2011, 2017a, 2017b; República de Cuba, 2019). This worldview

is put into practice by a policy framework built since the winning of the Revolution, in which the development strategy relies on optimized exploitation of natural resources using science, technology, and industrialisation under State-led, large-scale enterprises or State-controlled cooperatives, whilst the peasantry and small-scale production is perceived as a backward model and not compatible with scientific-technological socialism (Rojas, 1978; Nunez-Jimenez, 1982; Partido Comunista de Cuba, 2017b). This fundamental worldview has not changed, despite the State's reforms, but has been consolidated through major current PCC policies (Partido Comunista de Cuba, 2017b). This is reflected in the reaffirmation of the mixed approach to agriculture and industry after the updating of the Socio-economic Model in (Ibid). The mixed approach comprises two strands: the development of industrialised, monoculture agriculture – in the *Polos Productivos* – including the development of GMO and biological controls, and agriculture under low input conditions in programmes such as the urban and suburban agriculture, the Mountain Programme and Soil Recovery Programme (*Poligonos de Suelos)* (Partido Comunista de Cuba, 2017b). Both strands operate on the premises of protecting the environment. Moreover, paradoxically, this worldview was further consolidated with the leadership's adoption (Castro, 1992) of the Western and neo-liberal sustainable development initiative (World Commission on Environment and Development (WCED), 1987). Cuban socialism calls for protection of the environment, however it does not regard agroecology or any other low input or ecologically friendly model of production under small- and medium-scale agriculture as the preferred model of production to attain socialism (Partido Comunista de Cuba, 2011, 2017b).

7.3.2 FS Supporting Food Producers / *Differentiation of food providers and deepening power imbalances*

Contrary to the Marxist-Leninist ideology prevalent in Cuba, FS is unequivocal in defending small-scale food providers (as a socio-political category) and their livelihoods, and rejection of technocratic and capital driven approaches (Nyéléni, 2007; La Via Campesina, 2016). In the context of Cuban Marxist-Leninist socialism, the identity and acknowledgement of small-scale *campesino/as* is entangled with the historical debate about the Cuban agrarian question, discussed in chapter 4. This encapsulates political and epistemological negation of the peasantry's identity and mode of production and its role in a socialist society. It is argued in this research that, from the perspective of the agrarian question in its labour and capital (Akram-Lodhi and Kay, 2010a; Bernstein, 2013) and ecological aspects (Tilzey, 2018b), in the Cuban leadership's socialist vision the role of the peasantry and the development of an ecologically friendly agriculture, including agroecological practices, are parts of a 'saving investment strategy' to build "prosperous, sovereign and independent and sustainable

development." (Partido Comunista de Cuba, 2017a:4). The 'respect for *campesinos*' stated in the resolution of the Cuban agrarian question is contradicted by their inclusion as a tactic to reduce investment, through leaving the risks and responsibility in the hands of producers'/families', who are required to use their own resources for self-provision and providing food and ecoservices to the national population and industry, as well as competing in the supply-and-demand market with intermediaries and with State enterprises. Strikingly, this socialist approach resonates with the dual message of the UN and World Bank regarding small-scale farmers, that is to 'protect' them but at the same time to pursue their insertion in free trade and value chain agro-industry (United Nations, 1992; World Bank, 2007).

The mixed approach to agriculture has opened space for small- and medium- scale agriculture – particularly in urban and suburban areas – to re-emerge during conjunctural crises, but structurally it maintains the emphasis on large-scale conventional agriculture and maximum exploitation of resources (Partido Comunista de Cuba, 2017b). In this context, agriculture in the suburban area takes place on a small-, medium-, and large-scale, the latter under State enterprises and foreign investors, all supported by national infrastructure nominally on the same basis. However, in practice not all producers can access resources in the same manner, as illustrated throughout chapter 5, including analysis of Land Redistribution Laws (Concejo de Ministros, 1993; Ministerio de Agricultura, 1995; Ministerio de Justicia, 2008b, 2008a, 2012; National People's Power Assembly, 2014), the PCC policy Guidelines (Partido Comunista de Cuba, 2011, 2017b) and the narrative of the leadership (Castro, 2009, 2010), which shows that the focus for investment is on the most efficient forms of production where science and technology can be applied. The findings of this research contrast sharply with claims that land redistribution was a pro-poor agrarian reform (Rosset, 2009). The SAP as a national agricultural programme relies on the overall national infrastructure, the human resource development created for all sectors with the Revolution and used by all regardless of whether they are the proletariat or not, and with the support of international funding agencies. From an individual *campesino/as'* perspective they must strive with their own means to compensate for differential access to resources.

7.3.3 Localising Food Systems / *Rural-suburban-urban interdependences and national focus*

"Linking people to the land and to the results" (Machin-Sosa et al., 2013) and "maximising in the most intensive way all the existing land in cities and towns" (MINAG-GNAUS, 2009) were slogans first used by Fidel Castro during the Special Period, then by Raul Castro when launching reforms associated with the establishment of the SAP, namely land redistribution,

decentralisation of some State functions in the commercialisation of agricultural produce to the municipality, tax collection by municipalities, dissolution of the ration system, laying off State workers and promotion of self-employment. These reforms included reorganising of people across space and resources. For instance, restructuring of oversized State enterprises and putting land managed by the State into the hands of workers or individual-collectivised producers. With the creation of the SAP this reorganisation resulted in a movement of urban labour into suburban land thus connecting processes and people across the country. Theoretically, this could be related to 'localising of food systems' or to repeasantisation concepts (Nyéléni, 2007; van der Ploeg, 2018). However, given the form which this movement has taken in Cuba, this research has evidenced that it cannot be characterised fully as either of those two concepts, as discussed in section 5.3 of chapter 5 and chapter 6. This is argued mainly because there was no resettling of people on the land, as in building their homes and having certainty of the continuity of their livelihoods, but only bringing in mobile labour to produce from the land. The aim was not to support community or social fabric in the suburban land but to maximise resources, in broad terms it was not about full reconstruction of social relations and relations with nature and thus how wealth is produced and distributed (Moore, 2015). The SAP is however presented as a strategy to resolve ecological, social and economic problems that the country has been facing since before the Special Period as described in chapter 4. These problems were described by Raul Castro as having idle land across the country that needed to be recovered, the need to lay off people from State jobs and open new sources of employment following the increasing urban demographic density – thus creating new sources of income and ways for people food self-provisioning. In short, the SAP's creation was linked to "the need to make the State more efficient" (Castro, 2010), as well as a strategy to achieve food security as enshrined in the new national constitution. That is "the State creates the conditions to strengthen food security for all people" (República de Cuba, 2019).

The SAP in this strategy effectively can be seen as a buffer as well as a driver (a juxtaposed effect) for the growing differentiation among producers regarding access to resources and support, differences in purchasing power among all population when having to enter the market for food, input and jobs, and a national decrease in social welfare. This juxtaposed effect is because the distribution of suburban land under usufruct laws across the country, the national support offered by State enterprises (e.g. provision of some tools, biological controls or agrochemicals), and the rhetoric of having certain autonomy to enter into the supply-and-demand market appears to be operating on a level playing field or effectively allowing everyone to access land and the market. However, in practical terms, this research showed that power differentials are growing, as those in the State-civil society structure whose agency is curtailed by the centralised system are less likely to have access to resources (biophysical

and social). By using the agrarian question and analysis of the market, this research evidenced that if the question of land reform or agrarian reform is a crucial political issue in other nation-States, in Cuba the contentious issues are the market and governance systems. Although, agricultural production is regarded as a problem, as a researcher jokingly put it 'agriculture in Cuba means problems', the market question is even more critical and is at the heart of Cuban politics, as explained in section 5.3 and 5.4. It is argued in this research that for the leadership, the priority issue of having ownership and decision-making power on land use and modes of production (regardless of who is doing it, e.g. cooperatives or individuals) is already under their control. In this respect developing/expanding market control as a capital accumulation mechanism is a parallel top priority and an ongoing concern, both for intra State enterprises and actors as well as for private forces. The market was a concern for Fidel Castro, associated with the closure of the *campesino* markets and from another perspective it is also at the heart of Raul Castro's reforms (which are being implemented by the new president Diaz-Canel), geared towards the consolidation of Cuban market-socialism. In fact, the market is one the biggest tensions and contradictions, and at the centre of it, is the State and the institutions that manage food and inputs distribution. Food distribution is directly connected to one of the most powerful actors within the State, that is the armed forces, who control the market for food imports and exports.

In this tension SAP's multifunctional *campesino/as* enter the market, whether within the State or in the supply-and-demand market, under the premise that the State is a mediator and regulator, above all it is expected that it should safeguard them as part of the ruling social class. However, as evidenced in this research, this State regulatory role has been recurrently failing. Moreover, the market system makes no differentiation on what type of food is sold (except for food sold in organoponics and imported food sold in the TRDs) or who produces what and at what cost. In practical terms all producers, intermediaries and the State institutions enter into competition, however not on an equal basis. This is because producers compete among themselves but also with intermediaries and with State enterprises who have more bargaining power and do not bear the risks of production in the same manner. It is evident from this research that the call to reform-regulate the market and to create local supply-and-demand markets, without tackling the actual nature of the State and the market, will counteract the wider and transformational FS's ambition, in both Statist forms of socialism such as in Cuba and in capitalist nation-States. In this situation, it is paradoxical that FS advocates in capitalist settings call for a State-controlled market, however, in socialist Cuba the policy trend is to hand over more power to the private market, while the State is a powerful actor in the market that crosscuts all areas of the country regardless of, for instance, the SAP's aim of

localising production and distribution in municipalities. As evidenced in this research food crosses all areas from local to national within the centralised commercialisation system.

The other aspect impacted by this contradictory and critical nature of the State and the market is the coupling of agriculture and industry in small-scale enterprises managed by local actors, as proposed in the SAP. Despite its potential for localising food systems, in the sense of building local economies, reducing ecological impact, waste and loses, this proposal is constrained by the mixed approach prioritising large-scale industries thus also creating contradictions, tensions and differentials among producers as explained throughout section 5.3. This scenario demonstrates that policy needs to be coherent with issues of reconstruction of the social fabric between the city and rural areas, balancing local and the national needs regarding even distribution of resources and development, linking production, processing, and distribution in a two-way flow and not only towards the centre (or concentrating on big cities).

This leads to the second key aspect mentioned above, that is the contradictions regarding the question of governance, the field of Emergent Totality in the 'four-planes of the social being'. This is the aspect that touches on institutions, social relations that go beyond the human-to-human and deal with the relations of the individual with the collective, and the redistribution of wealth.

7.3.4 Food for People / *Food production for capital generation*

As demonstrated throughout chapter 5 and concluded in point 7.2 in this chapter, the SAP with its multipurpose aim and the small- and medium- scale multifunctional *campesino/as* cannot only produce nutritious food for the population and themselves but can also meet the State targets to produce food and ecoservices for capital generation (directed to feed industry). This includes the small-scale food processing industries and their contribution to local and national economic development. However, despite the leadership's demand that the SAP use low input and agroecological practices, this is not because of the priority to produce adequate, nutritious, and culturally appropriated food for people, but primarily to enable investment for capital generation. This is evidenced for instance by the fact that in the centralised food distribution system, there is no effective means to differentiate what type of food is produced, apart from the organoponics which are banned from using agrochemicals. Moreover, as research participants explained, given the unreliability of food supplies, the crucial factor for people is to find food and be able to pay for it, regardless of how it is produced whether organically, agroecologically, under conventional agriculture or imported food as explained in section 5.4. While one of the FS ambitions is close relations between consumers and

producers, also mentioned in the SAP, and the building of trust and knowledge about the food that is eaten, in practical terms this is overridden by the Cuban centralised system. Despite the municipalisation of some functions in the commercialisation system it effectively operates through the same channels at local and national level. In this situation, the existence of the SAP was not known to most of the research participants who were not involved directly or indirectly in agriculture. As far as this research revealed, there was no obvious means or channel through which non-producers and producers could link, for instance through social forms of organisation. Similarly, SAP's structure had no links with non-producers, apart from its educational programme with young people for protection of the environment.

SAP's contribution to meeting the population's food needs is within a striking contradiction within the set of reforms associated with the programme. On the one hand reforms included reducing food accessibility through social welfare – eliminating improper gratuities and excessive subsidies (Castro, 2008), and addressing the lack of investment for SAP's producers to develop ecologically friendly livelihoods, and, on the other hand, the success of small- and medium-scale food providers, who are effectively providing a diversity of food for themselves and the population. This contradiction has been cemented in the new national constitution, which on the one hand has included the notion of right to food and food security and on the other hand the reduction of the system in which everyone receives food and demanding that producers produce from the land by their own means. Regardless of this contradiction, Raul Castro argues that eliminating gratuities is not in contradiction to the socialist principle, but a matter of making the State more efficient (Castro, 2008, 2010). In this context, the State's social function, in a Polanyian sense, is still called for by some people in Cuba, as it is by some FS advocates in capitalist settings.

From another angle the extension of the supply-and-demand market, reduction of the ration system and subsidies, the volatility of prices, low wages, and lack of employment, plus the existence of shops where imported food is sold at higher prices, means that effectively there is differentiation on how people access food, regardless of whether they are a producer or non-producer, as everyone must buy food in one form or another. Worryingly, rather than decreasing, this differentiation is growing and likely to be cemented within the market-socialism ambition in which unequal competition in terms of wages, jobs, and access to food and other resources, already happening in practice, will become the norm.

7.3.5 Putting Control Locally / *Centralised control in the one-party Statist socialism*

The FS's political stance calling for small-scale food providers' right to decide and build governance is beyond the Cuban Marxist-Leninist socialist State. The debate about different types of sovereignty, at individual, household, or national level, or livelihood sovereignty (Patel, 2011; Schiavoni, 2016; Tilzey, 2018b) has not resonated in Cuba. This is because autonomous forms of governance or independent organizing (for instance as proposed in the past by Cuban anarchists with their free campesino cooperatives or mutual aid societies) are forbidden in Cuba, as explained in chapter 4. The social organisations existing in the country are mass popular organizations, such as ANAP, the Cuban Women Federation or the Committees for the Defence of the Revolution, which are official bodies of the one-party State system. This system's priority is to maintain national sovereignty – within the context of the US blockade – and decision-making is strongly based in the PCC and its leader.

In this system, the SAP's creation is a top-down decision to respond to a recurrent multifaceted crisis within the country's mixed approach to agriculture and development. It was built on the already officialised movement of urban and suburban agriculture. As a producer stated, urban agriculture was in its origins a movement of people working towards food provisioning, which later was officialised as the UAP, while in contrast, the SAP has always been a programme under the responsibility of the Ministry of Agriculture.

The administrative reforms were exactly that, the administration and implementation of policies already taken at central level. For instance, allocating the monitoring of the redistribution of land and human resources within municipal governments, ANAP and other State institutions and the implementation of central decisions about commercialisation, as well as expanding the decision already taken to expand the supply-and-demand market. These reforms had an economic aim, but they did not create opportunities for changes in forms of governance or to allow bottom-up and independent participation or autonomy of producers and non-producers. Despite the access to land there is no opening to autonomous social movements, organisations or cooperatives. In this respect it is key to highlight that land redistribution in the Special Period and in 2008 was a prerogative of the leadership rather than effectively a demand from social forces from below. Moreover, ANAP's responsibility for oversight of the State-led land redistribution seems to consist mainly in following central decisions, as in the case of implementing the resolution of the Cuba agrarian question, namely supporting the implementation and monitoring of the leadership's decisions about transforming the peasantry. This means ensuring that land is put into production under the Land Redistribution Law's premises, e.g. ensuring collectivisation of individual producers and

that land is put in production according to State targets and by producers own means. Similarly, the opening of the market, a critical issue for the leadership, does not give more power to small- and medium-scale producers and non-producers to make decisions or to have direct oversight of centralised decisions. This is evident in controversial issues such as the increased power of intermediaries and above all the failure of State enterprises to resolve historical problems with the food distribution system, including the fact that the power of State actors to control the distribution process of high-priced imported food remains untouched. Moreover, the pressure of the US blockade gets entangled with the leadership's Marxist-Leninist ideological authoritative stand and the need to prevent imperialist advances as well as capitalist tendencies (among individual producers and entrepreneurs) (Castro, 2009, 2016), while also allowing decision-making on direct matters of production and markets towards capital accumulation.

The SAP has no strategic decision-making independence, and it is not a movement in the sense of a social movement (either as an old or new social movement (della Porta, 2009)) driving social transformational change as explained in section 5.6. The programme is part of a hierarchical governance structure as shown in the overall USAFP organigramme (see Figure 5.5.4) with weak or non-existent channels for producers and non-producers' direct participation in decision-making. Hence the call of some scholars for social movements as the alternative force to drive the FS agenda, is a remote possibility in the case of the SAP. This is despite the use of interstices within the State institutions to effect change by individuals, for instance independent researchers-producers as explained in section 5.6. Moreover, the ANAP, with which the SAP has supportive relations, and which is the official voice of the PCC as regards *campesinos* in Cuba, is not an independent social force. The issue emerging regarding realisation of the FS's 'Putting Control Locally' in the Cuban centralised Marxist-Leninist State, is that the latter is explicitly maintaining its status as a monolithic power, rather than 'weathering it away" (Lenin, 1966; Marx, 1970). Furthermore, this is even being consolidated in the absence and/or control of social forces that could critique and take forward a transformational agenda. In this context the multifunctionality aspect of the SAP, and the possibility of it being a political tool for advocating FS as expressed by (Hollander, 2004; McCarthy, 2005; Tilzey and Potter, 2014) is running the risk of being more like a tool to cover for the failure of the market and conventional agriculture as in the multifunctional debate in the EU context. This is because there is no social force from below struggling for FS multifunctional livelihoods (Tilzey and Potter, 2014).

The analysis undertaken in this research of the historical precedents of the SAP in relation to its current situation, shows that reformist strategies have become the pattern in Cuban

agrarian relations. Following the winning of the Revolution, the State hegemony transformed the peasantry and characterised its mode of production as backward. Later, with the failure of the State enterprise model of production, the peasantry was brought back to help in responding to the Special Period crisis (see Deere, 1992), while maintaining the same mixed approach, then calling again for small- and medium-scale producers to put idle land into production within the SAP. Yet the successful contribution of these producers, even while bearing economic risks individually and/or with their families within the socialist capital accumulation model, had not been enough to convince the leadership to mainstream an ecological and multifunctional small- and medium-scale *campesino* model of development and to take steps to open channels for real decentralisation. This means, for instance, managing capitalist tendencies through politically permeated strategies that release power to autonomous forces which can exercise individual and collective control of the State, eventually making it devolve power at all levels, effectively the 'withering away the State' in Marxian theory or in anarchist socialist terms making decentralised systems effective in a confederative manner as discussed in section 5.5.

In this context, policy making around FS in Cuba since 2020 raises concern about the extent to which FS can be institutionalised without a broad movement of people who are conscious of its true meaning, rather than only a network of institutions and individuals with power. From what participants expressed in this research, FS is about autonomy and the freedom to decide. This contrasts with how FS is currently being 'legislated' for, which, as stated by the FAO, is driven by the Cuban leadership, the FAO and an EU-funded project. The introduction of FS policymaking from a top-down approach and the support for this by international bodies is another aspect that demonstrates the influence of international bodies (with neoliberal ideology and political agendas) on policymaking in socialist Cuba (as explained in chapter 4). An emergent question is whether the FAO or the EU is providing financial and political support to independent activities and processes to build self-governance and the autonomy of small-scale food providers or only supporting development of technocratic strategies, and, equally important, whether the UN and EU institutions strongly demand the lifting of the US blockade to build Cuba's FS. This point serves to reassert two arguments made in this research, (i) that FS-Agroecology needs to be considered as a unity, since, when agroecology was introduced as a technological fix without touching power relations, it was already put in a position to be co-opted; and (ii) the importance of reasserting the humanist premise of transformative praxis in the process of building FS (Grey and Patel, 2014). This means addressing master-slave relations in both human-to-human and human-to-nature interactions, which in turn impact on how institutions are built (Bhaskar, 2008). In this respect this research has evidenced through 'the four-planes of social being' element of the FS-A-D that the field of Transformative Praxis

has been overtaken by the Emergent Totality, that is by the State power and its hegemonic institutions, with the support of global para-State institutions.

7.3.6 Building Skills and Knowledge / *Normalisation of the social non-existence of epistemic subjects*

The official view that science and technology are the basis of knowledge production is carried forward within the SAP (MINAG-GNAUS, 2009). The SAP, like all Cuba's agricultural programmes, is connected to some of the 37 institutions supporting agroindustry through training and provision of inputs and services (e.g. biological controls/fertilizers, seeds, agrochemicals, technical services) and about 8 cross-sectoral (informal education/service provision) national NGOs supporting the agricultural sector. Overall, the models of knowledge production and transmission in the SAP focus on technological aspects. This is backed up by the commitment of the leadership to develop technological sovereignty (Partido Comunista de Cuba, 2017b). Having said this, the above network of institutions and commitment can by no means be confused with support for developing traditional knowledge or investing in the new forms of knowledge that has been consolidating with the exchanges between *campesinos* from different backgrounds and knowledge systems across the territory within the SAP and the USAFP, as evidenced in this research. Contradictions in the mixed approach to agriculture in the Cuban socialist Socio-economic Model are projected onto producers through knowledge production and dissemination without due critique. There is no questioning - or an intrinsic acceptance of - the producers' need to adopt knowledge and less interest in incentivising or nurturing their own knowledge systems. This can be interpreted as the normalisation of the 'social non-existence' of the *campesino/a's* knowledge, but at the same time SAP's *campesino/a*s are pragmatically expected to pick up some of the practices of the traditional ways to cultivate land using low inputs, to contribute to national food provisioning. Bearing this in mind, the construction of FS cannot be taken as synonymous with transfer of technologies or practices for maximising producers' surplus and low input production contributing to a soft 'socialist capital accumulation' (Preobrashenksy in Kay, 2009; Akram-Lodhi and Kay, 2010a).

The recognition and valuing of small-scale food producers with all their diversity implies the validation of their identity and respecting them as epistemic subjects. It entails active funding of research and development in relation to producers' own knowledge, livelihoods, self-governance, and independent research initiatives (Pimbert, 2018a). This entails political and economic decisions backed up with actual implementation and not muddled with hegemonic rhetoric and consent building through State-civil society factions (Gramsci, 1971). This is referred to by some as having the 'political will', however in the State-civil society this needs

to be understood in relation to power tensions at the heart of it. For instance, the Cuban development of biological controls that was initiated in the 1970s for commercial crops, and the later production of GMOs, both under State-led research, while calling on the SAP for self-sufficient and low input practices, shows that decisions about technologies are politically and economically driven regardless of Cuba's Statist socialism. The human and ecological costs and externalities of conventional agriculture seem not to be taken into full consideration in the 'political will' to invest in producers' knowledge.

Based on the evidence of this research, the SAP with its multi-purpose approach shows potential to contribute to FS and at the same time it exposes fundamental contradictions in the Cuban socialist mixed approach to agriculture, and as such it shows the drivers or points of inflection for change. Thus, if contradictions are obscured through unfounded assumptions that FS already exists in Cuba, the potential for change is severed. The adoption of agroecology as pursued by international scholars only as a technological tool disassociated from intra State-civil society power relations in agrarian and social fields, directly impacts the existence of peasants and their mode of production, and hence the development of FS.

The State's recurrent reformist approach and evident lack of impact of its reforms, coupled with the absence/control of autonomous social forces, have become a pragmatic tactic to buffer this failure and divert attention from addressing the contradictions and mainstreaming the successes of the UAP and its legacy in SAP. The recent adoption of FS in the official discourse represents a risk of diluting even more the progress towards FS. This is reinforced by external influences, namely the neo-liberal agenda of para-State institutions (e.g. UN bodies, WTO, IMF, World Bank) and imperialist forces with the ongoing US blockade. Thus, to unlock the SAP's potential to contribute to FS in Cuba, rather than a one programme approach, depends greatly on Cubans recognising and addressing the twofold potential of the SAP in a dialectical and critical manner, at individual and collective level, based on decentralised self-and collective governance. Hence it needs a radical transformation of oppressive power relations and the capital accumulation approach to nature-to-human and human-to-human relations.

7.4 Building FS-Agroecology and implications of this research

This research is a step towards realizing that the contradictions in the Marxist-Leninist socialism that the SAP is evidencing, are not unlike those in capitalist systems. It shows that despite the apparent differences between the struggle for FS in capitalist and socialist settings, in their different paths, there is a common need to address power relations at the heart of the

State and its close connection with para-State international institutions. There is the need to understand them and deconstruct their modus operandi in terms of governance models and to prevent its reproduction within social movements. This points to another of the broader implications of this research, namely the need to build individual self-power/agency thus reinforcing the collective transformative praxis. In this respect, one of the key themes that came out of this research which merits further investigation is regarding processes of construction of self and collective governance out of the remits of the State. This means research on onto-cracia, the power of the self or 'capacity to do things', which by extension means understanding and living different forms of embodying reality thus relating to nature as proposed by feminist thinkers. This research asserts the need for constructing new forms of social organizing and governance systems to transcend the ecological and governance crisis of both Marxist-Leninist socialism and capitalism. It shows that it is time to seek for new strategies even if they sound utopian.

For researchers in institutions and organisations in Cuba such as ACPA, ACTAF, INIFAT and the programme PIAL and small- and medium-scale producers, this research stresses the need to continue exploring from a bottom-up perspective the meaning of FS in the country, a desire stressed as one of the outcomes of the research's national workshop on food sovereignty. It is necessary to engage, in a collaborative manner and with a multi-actor/sector perspective even further at the very local level on initiatives that go beyond the technicalities of food production or compliance with centralised taken decisions. This is involving for instance producers outside the national network such as *parceleros*, *patio* and independent *finca* owners, small-scale industries, distributors, and non-producers across the territory. If the process of differentiation between producers and among non-producers keeps growing, as argued in this research, it is paramount to find strategies to build face-to-face debate and effectively support small- and medium-scale producers to maintain their livelihoods regardless of reformist changes, bearing in mind that this can be seen as politically controversial. In this regard this research points out the critical need to address contradictions and share strategies among different actors to overcome them, regardless of constraints. Similarly, this research points out the need to reconsider in a dialectical and critical manner the current adoption of agroecology, its relation to FS and its impact on the traditional knowledge of Cuban *campesino/as*, not in an essentialist manner but addressing their identity and own ways of knowledge production and construction of modernity as non-static actors. In view of all the above, this research has broad implications for actors in Cuba, but also internationally, in advancing the construction of FS-Agroecology.

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Appendices

Appendix 2.1: Food Sovereignty Seven Principles (1996) and the Six Pillars (2007)

Food Sovereignty a Future without Hunger Seven Principles	Six Pillars of Food Sovereignty
1.Food: A basic human right: Everyone must have access to safe, nutritious and culturally appropriate food in sufficient quantity and quality to sustain a healthy life with full human dignity. Each nation should declare that access to food is a constitutional right and guarantee the development of the primary sector to ensure the concrete realisation of this fundamental right.	**1**. **Focuses on Food for People**: Food sovereignty puts people, including those who are hungry, under occupation, in conflict zones and marginalized, at the centre of food, agriculture, livestock and fisheries policies, ensuring sufficient, healthy and culturally appropriate food for all individuals, peoples and communities; and rejects the proposition that food is just another commodity or component for international agri-business.
2. Agrarian reform: A genuine agrarian reform is necessary which gives landless and farming people – especially women – ownership and control of the land they work and returns territories to indigenous peoples. The right to land must be free of discrimination on the basis of gender, religion, race, social class or ideology; the land belongs to those who work it.	**2. Values Food Providers**: Food sovereignty values and supports the contributions, and respects the rights, of women and men, peasants and small-scale family farmers, pastoralists, artisanal fisherfolk, forest dwellers, indigenous peoples and agricultural and fisheries workers, including migrants, who cultivate, grow, harvest and process food; and rejects those policies, actions and programmes that undervalue them, threaten their livelihoods and eliminate them.
3. Protecting natural resources: Food sovereignty entails the sustainable care and use of natural resources, especially land, water, seeds and livestock breeds. The people who work the land must have the right to practise sustainable management of natural resources and to conserve biodiversity free of restrictive intellectual property rights. This can only be done from a sound economic basis with security of tenure, healthy soils and reduced use of agro-chemicals.	**3. Localises Food Systems**: Food sovereignty brings food providers and consumers closer together; puts providers and consumers at the centre of decision-making on food issues; protects food providers from the dumping of food and food aid in local markets; protects consumers from poor quality and unhealthy food, inappropriate food aid and food tainted with genetically modified organisms; and resists governance structures, agreements and practices that depend on and promote unsustainable and inequitable international trade and give power to remote and unaccountable corporations.
4. Reorganising food trade: Food is first and foremost a source of nutrition and only secondarily an item of trade. National agricultural policies must prioritise production for domestic consumption and food self-sufficiency. Food imports must not displace local production nor depress prices.	**4. Puts Control Locally**: Food sovereignty places control over territory, land, grazing, water, seeds, livestock and fish populations on local food providers and respects their rights. They can use and share them in socially and environmentally sustainable ways which conserve diversity; it recognizes that local territories often cross geopolitical borders and ensures the right of local communities to inhabit and use their territories; it promotes positive interaction between food providers in different regions and territories and from different sectors that helps resolve internal conflicts or conflicts with local and national authorities; and rejects the privatisation of natural resources through laws, commercial contracts and intellectual property rights regimes.
5. Ending the globalisation of hunger: Food sovereignty is undermined by multilateral institutions and by speculative capital. The growing control of multinational corporations over agricultural policies has been facilitated by the economic policies of multilateral organisations such as the WTO, World Bank and the IMF. Regulation and taxation of speculative capital and a strictly enforced code of conduct for multinational corporations is therefore needed.	**5. Builds Knowledge and Skills**: Food sovereignty builds on the skills and local knowledge of food providers and their local organisations that conserve, develop and manage localised food production and harvesting systems, developing appropriate research systems to support this and passing on this wisdom to future generations; and rejects technologies that undermine, threaten or contaminate these, e.g. genetic engineering.
6. Social Peace: Everyone has the right to be free from violence. Food must not be used as a weapon. Increasing levels of poverty and marginalisation in the countryside, along with the growing oppression of ethnic minorities and indigenous populations, aggravate situations of injustice and hopelessness. The ongoing displacement, forced urbanisation, oppression of smallholder farmers and increasing incidence of racism against them cannot be tolerated.	**6. Works with Nature**: Food sovereignty uses the contributions of nature in diverse, low external input agroecological production and harvesting methods that maximise the contribution of ecosystems and improve resilience and adaptation, especially in the face of climate change; it seeks to heal the planet so that the planet may heal us; and, rejects methods that harm beneficial ecosystem functions, that depend on energy intensive monocultures and livestock factories, destructive fishing practices and other industrialised production methods, which damage the environment and contribute to global warming.
7. Democratic control: Smallholder farmers must have direct input into formulating agricultural policies at all levels. The United Nations and related organisations will have to undergo a process of democratisation to enable this to become a reality. Everyone has the right to honest, accurate information and open and democratic decision making.	
Source (LVC,1996 in Windfuhr and Jonsen, 2005)	Source: Nyéléni, 2007

Appendix 3.1: List of Participants

To guarantee anonimity each participant is coded as follows: P - producer, MI - processor, D - distributor, and C - consumer, followed by the initial of the site and their corresponding number. The second group of participants appears as SG followed by number and role. The Location is coded as Suburban (S), Rural (R) and Urban (U)

	ID	Location		ID	Location			Location		ID	Location		ID	Location	ID	
PRODUCERS			**PRODUCERS**			**DISTRIBUTORS**			**DISTRIBUTORS**			**CONSUMERS**				**Second Group**
1	PC1	S	47	PS24	S	92	DC1	S	138	DS10	U	183	CC19	U	SG3	Coordinator
2	PC2	S	48	PS25	S	93	DC2	S	139	DS11	U	184	CC20	U	SG4	Professor - Agronomy
3	PC3	S	49	PS26	S	94	DC3	S	140	DS12	U	185-194	CC21G	U	SG5	Researcher and lecturer in
4	PC4	S	50	PL1	S	95	DC4	S	141	DS13	U	195	CC22	U	SG6	Subdirector
5	PC5	S	51	PL2	S	96	DC5	U	142	DS14	U	196	CS1	S	SG7	Officer and
6	PC6	S	52	PL3	S	97	DC6	U	143	DS15	S	197	CS2	S	SG8	Director
7	PC7	S	53	PL4	S	98	DC7	S	144	DS16	S	198	CS3	S	SG9	Researcher
8	PC8	S	54	PL5	S	99	DC8	S	145	DL1	S	199	CS4	U	SG10	Beekeepers
9	PC9	S	55	PL6	U	100	DC9	S	146	DL2	S	200	CS5	U	SG11	Coordinator of Research Design and Methodology
10	PC10	S	56	PL7	S	101	DC10	U	147	DL3	U	201	CS6	S	SG12	Coordinator Popular Education
11	PC11	S	57	PL8	S	102	DC11	U	148	DL4	U	202	CS7	S	SG13	Researcher director
12	PC12	S	58	PL9	S	103	DC12	U	149	DL5	S	203	CS8	U	SG14	International
13	PC13	S	59	PL10	S	104	DC13	U	150	DL6	S	204	CS9	U	SG15	Researcher
14	PC14	S	60	PL11	R	105	DC14	U	151	DL7	U+S	205	CS10	U	SG16	Lecturer
15	PC15	S	61	PL12	U	106	DC15	U	152	DL8	S	206	CS11	S	SG17	Agroecologist
16	PC16	S	62	PL13	S	107	DC16	U	153	DL9	S	207	CS12	S	SG18, SG19, SG20	3 Members of GNAUS
17	PC17	S	63	PL14	R	108	DC17	U	154	DL10	S	208	CS13	U	SG21	Director of USAFP
18	PC18	S	64	PL15	R	109	DC18	S	155	DL11	U	209	CS14	S	SG22	Researcher and Agroecologist
19	PC19	S	65	PL16	R	110	DC19	S	156	DL12	S	210	CS15	U	SG23	Professor in
20	PC20	S	66	PL17	R	111	DC20	U	157	DL13	S	211	CS16	U	SG24	Staff-Statistics Office
21	PC21	S	67	PL18	S	112	DC21	U	158	DL14	S	212	CS17	U	SG25	Staff-Municipal Commercialisation
22	PC22	S	**FOOD PROCESSORS**			113	DC22	U	159	DL15	U	213	CS18	S	SG26	Researcher agricultural waste
23	PC23	S	68	MIC1	S	114	DC23	U	160	DL16	U	214	CS19	S	SG27	Researcher University
24	PS1	S	69	MIC2	U	115	DC24	S+U	161	DL17	R	215	CL1	U	SG28	Researcher on sustainable development
25	PS2	S	70	MIC3	S	116	DC25	S+U	162	DL18	U	216	CL2	U	SG29	Government official
26	PS3	S	71	MIC4	S	117	DC26	S	163	DL19	S	217	CL3	U	SG30	Empresa
27	PS4	S	72	MIC5	S	118	DC27	U	164	DL20	S	218	CL4	U	SG31	Acopio - Staff
28	PS5	S	73	MIC6	S	119	DC28	S	**CONSUMERS**			219	CL5	U	SG32	Delegate
29	PS6	S	74	MIC7	S	120	DC29	S	165	CC1	U	220	CL6	U	SG33	Agroecologist
30	PS7	S	75	MIC8	S	121	DC30	S	166	CC2	U	221	CL7	U	SG34	Two technicians
31	PS8	S	76	MIC9	S	122	DC31	S	167	CC3	U	222	CL8	U	SG35	Agroecologist Plant Protection
32	PS9	S	77	MIC10	S	123	DC32	S	168	CC4	U	223	CL9	U	SG36	Researcher and Government
33	PS10	S	78	MIC11	S	124	DC33	S	169	CC5	U	224	CL10	U	SG37, SG38	4 Producers-Researchers
34	PS11	S	79	MIC12	S	125	DC34	U	170	CC6	U	225	CL11	U	SG39, SG40	
35	PS12	S	80	MIC13	S	126	DC35	S	171	CC7	U	226	CL12	U	SG41	Staff - Faculty of Agronomy
36	PS13	S	81	MIC14	S	127	DC36	S	172	CC8	U	227	CL13	U	SG42	Researcher popular education
37	PS14	S	82	MIC15	S	128	DC37	S	173	CC9	U	228	CL14	U	SG43	Director Institute
38	PS15	S	83	MIS1	U	129	DS1	S	174	CC10	U	229	CL15	U	SG44	Researcher
39	PS16	S	84	MIS2	U	130	DS2	S	175	CC11	U	230	CL16	U	SG45	NGO
40	PS17	S	85	MIS3	U	131	DS3	S	176	CC12	S	231	CL17	U		
41	PS18	S	86	MIS4	S	132	DS4	S	177	CC13	S	232	CL18	U		
42	PS19	S	87	MIL1	R	133	DS5	S	178	CC14	S	233	CL19	U		
43	PS20	S	88	MIL2	R	134	DS6	S	179	CC15	U	234	CL20	U		
44	PS21	S	89	MIL3	R	135	DS7	S	180	CC16	S	**ID**	**Second Group**			
45	PS22	S	90	MIL4	R	136	DS8	S	181	CC17	U	SG1	NGO			
46	PS23	S	91	MIL5	S	137	DS9	U	182	CC18	U	SG2	Researcher			

Appendix 3.2: Format for Semi-structure Interviews

Entrevista semi-estructurada					
Información General					
Fecha: Provincia: Municipio:					
Concejo Popular:					
Nombre (Opcional) : Edad: Educacion:					
Tipo de Unidad Productiva: Granja-Finca Familiar CPA CCS Estatales Privado Otra					
Nombre de la Unidad:					
Genero: Es usted jefe/a de familia?					
Ocupación principal:					
Ocupación relacionada con la agricultura y producción de alimento (opción múltiple)					
Productor de alimento: Procesador de alimento: Comercialización: Consumidor:					
1.Cuanto hace que vive en el lugar de su vivienda actual?					
2. Es el mismo lugar en donde nació? ¿Sino, en donde nació? y por qué se movió a el área en donde vive?					
3. Su lugar de vivienda es el mismo en donde tiene su actividad productiva y/o trabajo?					
4. Si no por favor explique?					
5. Está contenta/o en el área en donde vive y trabaja? Y por qué?					
6. Cuantas personas viven con usted?					
Relación	Edad	Educación	Dependientes(ej. Hijo/as, parientes)	Estado de Salud	
7. El área en donde usted vive y/o trabaja es rural, urbana o suburbana?					
8. Usted sabe cuál es la diferencia entre estas áreas?					
Producción de Alimento					
1. ¿Cual o cuales de estas actividades practica?					
Cultivo Animales Agroforestales Acuicultura Integral (AnimalesyCultivos) Apicultura Otras					
Actividad:	Variedad		Cantidad o Tamaño Total (Has/Mts.o/Numero)		
Cultivos					
Organoponico					
Animales					
Mixta(Animales y Cultivos					
Agroforestales					
Acuicultura					
Apicultura					
Otros					
2. Desarrolla alguna actividad relacionada con el agroturismo en su unidad productiva?					
SI: NO:					
3. Breve descripción/mapeo del lugar (esta se desarrollara en actividad de grupo)					
4. Cuanto hace que trabaja en sus actividades productivas en este lugar?					
5. Porque decidió dedicarse a esta (s) actividad/des y cuando empezó?					
6. Donde aprendió lo que sabe sobre estas actividades?					
7. ¿Usted comparte sus conocimientos con amigos, vecinos, miembros de cooperativa,					
miembros de instituciones científicas u otros?					
8. Ha creado o inventado algo en este tiempo que practica su actividad productiva?					
9. ¿Usted recibe capacitaciones de alguna organización, institución académica o del estado?					
10. Cuanta tierra tiene para el desarrollo de su actividad productiva?					
11. La tierra es?					
Propia: Rentada: Usufructo: Cooperativa: Finca Estatal:					
12. Cuáles son las fuentes de agua a las cuales tiene acceso?					
Estable: Inestable: No tiene:					

Usos/Fuentes	Acueducto	Presa	Rio	Pipa	Tanque	Pozo
Consumo						
Riego						
Acuicultura						
Otro uso						

13. Hace reciclaje de agua o desperdicios sólidos? (la intención de esta pregunta es conocer
si existe manejo de residuos sólidos y líquidos e.g. letrinas o reconversión de aguas negras. (La pregunta se debe explicar)
14. Cuál era el uso y estado de la tierra antes de empezar su actividad productiva?
15. La tierra y el agua que tiene para desarrollar su actividad productiva es suficiente y adecuada?
16. Insumos e inversiones en su actividad productiva

Insumos	Donde y como los obtiene?	Cantidad (Unidad)	Costo
Semillas:			
Animales:			
Fertilizantes:			
Control de plagas y enfermedades			

Control de malezas				
Transporte				
Herramientas/ Maquinaria/				
Instalaciones y/o mejora de ellas.				

17. Recibe consejo técnico o apoyo financiero? ¿Si es así quien lo provee y debe pagar algo por ello?

18. Cuales son los problemas principales que tiene para llevar a cabo su actividad productiva?

Problema	Descripción	Posible solución

19. Podría dar un ejemplo de problemas que ha solucionado por su propia cuenta eg. ¿Creando o innovando algo?

Fuerza de trabajo

20. Cuantas horas trabaja a la semana en su actividad productiva?

21. Quien lo apoya o ayuda con el trabajo (familiar o no familiar) y cuantas horas?

Persona (ejemplo, hijo/a, esposo/a, trabajador, intercambio de trabajo con vecino/miembro de cooperativa)	Actividad	Horas	Pago (effectivo, en especie, intercambio de trabajo, otros)

22. Preguntas con el cuestionario de practicas agroecológicas.

23. Producción anual

Componente productivo	Cantidad total por ano (Tonelada o numero)	Total destinada a la venta	Total destinada para autoconsumo	Total destinada para donacion	Total para semilla
Cultivos :					
Animales:					
Frutales:					
Comida Animal:					
Abonos:					
Producción de energía					

24. Si mantiene animales/acuicultura, como obtiene su alimento?

25. Si su producción es destinada a la venta cómo y en donde se lleva cabo?

Producción	Lugar de Venta	Quien decide el precio? Y cuál es el precio por unidad eg. Tonelada/kg o libra	Sabe en donde se consume lo que usted produce?	Quien lo compra? Ej. Individuos/ instituciones / industrias /exportación/	Se utiliza para producir otro alimento: ej. Leche para queso, tomate para salsa	Usted esta directamente involucrado
			Ej. Mercado local otra ciudad?	Agromercado/		en el procesamiento y/o venta?
				Acopio		
				(Ton – Kg – Unidades)		
Cultivos						
Animales						
Frutales						
Pastos y Forrajes						
Miel						
Otros						

26. Que hace con el alimento que no consume o vende?

Ocupación primaria: Procesamiento de alimentos

Nota: Este componente se profundiza con los productores de alimentos, los cuales dedican parte o el total de su producción al procesamiento. Para aquellos procesadores de alimentos los cuales no son productores directos ver la encuesta específica para ellos.

Ocupación primaria: Comercialización de Alimentos

1. Nombre y ubicación geográfica del lugar en donde se lleva a cabo la comercialización
2. Cuando empezó a comercializar con alimentos?
3. Debe pagar impuestos para comercializar con alimentos?
4. Que lo motivo a vender alimentos?
5. Tiene relación directa con los productores y procesadores de alimentos?

6. Sino, como obtiene los alimentos?

7. Quien decide los precios de los alimentos?

8. Valor de los alimentos que usted compra para vender

Alimento	Ton/ Kg / Lb.	Valor Unidad	Total por ano/mes

9.Valores de los alimentos que usted vende?

Alimento	Ton/ Kg / Lb.	Valor Unidad	Total por ano/mes

10.Quien compra sus alimentos?

	Alimento	Cantidad	Lugar
Individuos			
Instituciones			
Industria/compañía			
Procesadoras			
Exportador			

11. Cuantas personas trabajan con usted en la venta de los alimentos?

Persona	Horas	Pago efectivo	Pago en especie

12. Que hace con el alimento que no logra vender?

Alimento	Cantidad	Destino

13. Recibe alguna clase de apoyo para la comercialización de los alimentos?

	Quien lo provee?
Capacitación	
Crédito	
Subsidios	
Equipos	

14 Ha tenido o tiene crédito bancario?

Consumo de Alimentos

1. Si su ocupación primaria no está relacionada con la producción, procesamiento y/o comercialización de alimentos, ¿cuál es su ocupación?

2. Que tipos de alimentos consumen usted y su familia?

Alimento	Desayuno	Cantidad	Almuerzo	Cantidad	Comida	Cantidad
Café						
Pan						
Tortilla						
Yogurt						
Arroz						
Frijol						
Boniato						
Yuca						
Malanga						
Platano						
Hortalizas						
Fruta						
Azucar						
Mantequilla						
Queso						
Refrescos						

3. Como y donde obtiene su alimento?

Tipo de alimento	Producción Propia	La libreta	Comparte con familiares/amigos/vecinos	Compra

4. Que alimentos obtiene en los siguientes lugares:

Tipo de Alimento	Agromercado Privado	Agromercado Estatal	TRD Tienda de Recaudo de Divisas	Vendedores ambulantes	Tienda	Otros

5. Tiene que viajar para conseguir el alimento?

6. Cual alimento le gusta más y por qué?

7. Hay alimentos que comía antes que ahora no está consumiendo? ¿Y por qué?

8. ¿Que alimento le gusta o necesita, el cual no es fácil de conseguir en estos días?

9. Usted cree que el alimento que usted y su familia consume es el adecuado para estar sano?

¿sino que haría falta para esto?

11. Cuanto gasta en alimento durante la semana o el mes?

Articulo	Valor

Appendix 3.3: Agroecological Practices Questionnaire

Cuestionario de Practicas Agroecologicas					
Practicas agroecológicas que quizás usted desarrolla aisladamente o en su totalidad.					
Practicas utilizadas en la agricultura					
Agroecológica: Orgánica: Biológica: Tradicional: Convencional: Otra:					
Prácticas para el Manejo de la Biodiversidad			**Si**	**No**	**Notas**
1	Establecimiento de sistemas agroforestales	Postes y/o cercas vivas			
		Forestales y/o frutales			
		Bancos proteínicos de arbóreas			
		Arboles dispersos en pastizales			
		Franjas hidrorreguladoras (barreras para controlar agua en ríos)			
		Arboles intercalados con cultivos agrícolas			
		Arboles intercalados con pastos y/o forrajes			
		Arboles en suelos no productivos /cultivables			
2	Policultivos, Diversificación espacial y temporal	Siembra intercalada de cultivos anuales			
		Siembra intercalada de cultivos perennes o mosaicos			
		Cultivos anuales intercalados con cultivos perennes			
		Siembra intercalada de árboles de diferentes especies			
		Cultivos agrícolas intercalados con cultivos forrajeros			
		Gramíneas asociadas con leguminosas herbáceas			
		Cultivos agrícolas y/o forrajeros intercalados con flores			
3	Manejo biológico de plagas, enfermedade	Empleo de bioplaguicidas o medios biológicos			
		Utilización de trampas de colores, olores etc.			
		Uso de plantas repelentes de plagas y/o medicinales			
		Manejo de Arvenses			
Practica para el Manejo y Protección del Suelo			**Yes**	**No**	
4	Rotación de Cultivos	Rotación de cultivos anuales			
		Rotación de cultivos perennes			
		Rotación de cultivos anuales con perennes			
		Rotación de áreas agrícolas con las áreas ganaderas			
		Rotación de áreas ociosas o invadidas de arbustivas espinosas			
5	Producción de abonos orgánicos	Producción y tratamiento de estiércol animal			
		Producción de compost			
		Producción de humus de lombriz			
		Producción de microorganismos eficientes			
		Producción de biofertilizantes			
6	Conservación y protección del suelo	Cobertura del suelo con mulch (cobertura muerta)			
		Cobertura de suelo con residuos de cosechos			
		Uso de leguminosas de cobertura/abonos verdes			
		Rehabilitación y/o renovación de pastos			
		Uso de barreras muertas o vivas contra la erosión			
		Siembra en terrazas contra la pendiente del suelo			
Prácticas para el Manejo y Conservación de Semillas					
7	Conservación y intercambio de semilla	Almacenamiento			
		Banco de semillas			
		Separación de semillas			
Otras Prácticas Agroecológicas					
8		Empleo del laboreo mínimo o labranza de conservación			
		Empleo de la tracción animal			
		Uso de residuos y subproductos de cosecha para la alimentación animal			
		Uso de fuentes alternativas de energía			
		Biprocesador			
9	Otras prácticas tradicionales o alternativas	Polinización – Abeja de la Tierra			
		Calendario Lunar			
		Energía piramidal			
		Magnetismo			
		Homeopatía			

Appendix 4.1: Current cooperatives in Cuban agricultural sector

	Cooperative of Agricultural Production (CPAs)	Basic Units of Production Cooperative (UBPC)	Cooperative of Credit and Services (CCS)
Origin Before the revolution there was collective production on common lands, which were areas of free access for poor people. With the creation of the latifundios, all land adjacent to large farms, the common land, was divided and taken by US companies (Callejas-Opisso *et al* ., 2015)). There were also free peasant cooperatives and societies organized by anarcho-syndicalists (Fernandez, 2001).	Created by the government in 1976, CPAs had their origins in the *Sociedades Agropecuarias* aimed at integrating the remaining independent campesinos, including members of the CCSs, and their means of production (Gonzalez and Artiles, 2016). This process was a top priority of the First Congress of the PCC (PCC 1976), to increase productivity through technology applied in large-scale landholdings. Independent landowners who acquired their land through the first and second agrarian reforms had the option to sell their land to the State, to become members of the new cooperatives or to remain independent (Wright, 2005; Gonzalez and Artiles, 2016).	Created by the government in 1994 Under the Decree Law 142. The oversized State enterprises were broken down into (UBPCs). Their creation was one of the measures to deal with the crisis of the 1990s. It involved an expansion of the cooperative form of production and a contraction of the State's enterprise responsibility for production.	The first CCSs were created voluntarily by small-scale producers who acquired their land titles through the first agrarian reform and those who had their land before the Revolution at the beginning of the 1960s. Their members join to collectively produce and commercialise as well as to develop and share technologies and finances sold or subsidised by the State. Gonzalez and Artiles comment that these cooperatives reflected the political momentum during the first years of the Revolution and were politically charged. In the origin they were "natural forms of organisation and community engagement which were not institutionalised by the State, they created networks of communication with urban centres and State institutions" (2016).
Mode of production	Large scale conventional agriculture	Large scale conventional production	Individual producers could be small- and medium-scale. Production is both at individual *fincas* and collectively by cooperative workers.
Land tenure	By 2017, the CPAs were still operating and have right to receive land in usufruct under the DL 259 and 300 but this land is not part of the heritage of the cooperative.	Land in usufruct for indefinite term. The State sold them animals, installations, equipment - which were in good condition - to be repaid over an agreed period and at low interest rate.	A mix of members with landownership and in usufruct. The cooperative as an entity is also allowed to hold land in usufruct. Members maintain the ownership to the means of production (land, equipment, animals etc) brought into the cooperative, if they decide to withdraw from the cooperative. They also maintain the right to inherit these means (Ramon-Philippon 2010, Nova 2013:116).
Production and distribution	Production targets are defined by the State according to the country's interest. Must sell their production through *Acopio* or through the enterprise that the State decides.	Production targets are defined by the State according to the country's interest. Owns its production. Must sell their production through *Acopio* or through the enterprise that the State decides.	Production targets are defined by the State. Each member manage their own *finca,* but the cooperative can also produce under land in usufruct. The cooperative serve as a conduit to commercialise for its members.
Membership	In the decade of 1970s CPAs were larger in membership and land use than CCSs. In recent times, CCSs have superseded CPAs in numbers, membership, land use and productivity. Members of this CPAs became active members of ANAP and the PCC (Wright, 2005).	The UBPCs had rights as a cooperative in that they owned all that they produce, and members elect their own leaders who are accountable to the membership. As any other legal entity in the country, they pay taxes. Members can be individuals with land in usufruct or cooperativised workers.	A CCS's membership in the 1980s could range from 35 to 75 members (Wright, 2005). Its membership expanded after the land redistribution in 1994 which created the UBPCs and gave land in usufruct to about 279,021 people, who joined the CCSs. By 2012 their membership was over 400,000 members (Delgado, 2016 in Gonzalez and Artiles, 2016). By 2017 membership of a single CCSs could be well over 200 members (Interview in Cienfuegos, ANAP).

Performance	Following the period of 1985 to 1990, “CPAs have high concentrations of unproductive land, low yields, lack of labour force, impact on the environment due to indiscriminate use of agrochemicals and bank debts”. To a certain extent they followed the fate of State enterprises which were dependant on technological packages and external inputs. (Gonzalez and Artiles, 2016:163).		They are considered the farms with best productivity in the country (Matias and Artiles 2016, Nova 2013). It is acknowledged that cooperatives such as the CCSs are currently key drivers of productivity and need to be more supported (Gonzalez and Artiles, 2016; Nova-Gonzalez, 2013).

Source: Prepared from (Fernández, 2001; Wright, 2005; Entrevista-Pineiro-Harnecker, 2013; Nova-Gonzalez, 2013a; Philippon, 2013; Callejas-Opisso *et al*., 2015; Matias-González and Artiles-Beltran, 2016)

Appendix 4.2: Cuban Land Redistribution Laws

Decree Law (DL) 142/94	Decree Law 259/08	DL 300/12 updating of Law 259	DL 318/18 update of Law 300	DL 313 and 118 Foreing Investors Act*
This Law created the UBPCs and provided land in usufruct (indefintive lease) to indiviudal pensioners	Those who can receive land are individuals-families (natural persons) and cooperatives, private enterprises (legal persons). Previous land grantees from DL 142, could also apply for more land. Any person regardless gender, occupation or location (living in rural, suburban or urban areas) with focus on young people. Individuals must have the necessary conditions to put the land to work and to have social and moral conduct according to the ethical values of our society. They must be self-sufficient. In the case of legal persons, they must have the necessary labour. The lease for individuals and cooperatives started from 5-10 years lease. Individuals applying for land must be associated with or become a member of a cooperative or the SAP's Granja Urbana. Cooperatives need the approval from ANAP. Campesinos and cooperatives must agree with the State-plan's production quotas, selling prices of produce and buying prices of inputs. Individuals are not allowed to build any houses on the land. The land cannot be sold or transferred. If not used according to the law, the land will be repossessed. The amount of land granted is from 13.43has to 67has for individuals and cooperatives.	Lease can be extended for 10 years more on ongoing basis and 25 for legal persons. Individuals can be affiliated to the Basic Enterprise Units (UEBs), created with the aim of evolving decisions in State enterprises to municipal level. Allowance build house	The amount of land changed from 28 to 67has. Production priority must be cattle and forest, using technologies	Land in usufruct given to foreign investors (Legal person). Lease for up to 50 years, renewable. Controlled by the State. According to the State priority sectors (industry and agriculture
*National statistics on the implementation of the land redistribution do not cover the amount of land given in usufruct to private investors. Further information on foreign investor is presented in the Foreign Investment Act Decree Law 118 and Portfolio of Foreign Investment (Cuban Government, 2015).				

Source: Prepared from (Concejo de Ministros, 1993; Ministerio de Justicia, 2008a, 2012; National People's Power Assembly, 2014; Cuban Government, 2015)

Appendix 4.3: Cuban Agriculture Sector

Agricultural Programmes of the Ministry of Agriculture
Polos Productivos: The Ministry of Agriculture defines Polos Productivos as: "zone, region or locality of a municipality or an entire municipality destined to agricultural production of one or various crops that share similarities in the use of technologies, commercial systems, or industrial processes, as source of raw material for its transformation or to create added value. These are areas with soils of high potential for the crops selected, they should have the necessary water, a park of tractors, the minimal equipment that allow the technological set up for the crop and to have approved the annual balance. There are four types of Polos Productivos in agriculture: 1. Specialised Polo Agro-industrial, where a crop is produced with defined sowing times and technologies and is linked to commercialisation, for instance the Rice Polos; 2. Non-specialised Polo Agro-industrial: these are the old citric enterprises which are now diversified with other production as source for industrial processing; 3. Polo Specialised in a Crop, in a locality of a municipality, which is not linked to industrial processing for its transformation. Its main objective is to commercialise fresh produce directly to the population. It should have areas with only one crop worked with a single technology and grew in the same season, for instance, production of onion and garlic and 4. Polos Specialised in the production of tropical roots and vegetables. They are organized in municipalities or agricultural regions where important crops with common characteristics in its productive cycle are produced. These constitute the fundamental basis for the distribution and commercialisation to big markets and cities destined to feed the population, supply the tourism and industry, and for exports" (MINAG, 2018).
Integral Programme of Mixed Crops (Cultivos Varios)
This programme covers Polos Productivos and the Urban and Suburban and Family Agriculture Programme
Production of tropical roots and tubers (yam, sweet potato, cassava, pumpkin)
Production of vegetables and fresh spices
Production of grains
Production of fruit trees
Production and distribution of medicinal plants and flowers
Organization of production and certification of seeds
Integral Programme of Animal Raising
Milk production (includes cattle, sheep, and buffalo)
Meat production (from cattle, pigs, goats, caprine, rabbits, buffalo, and poultry)
Egg production
Equine for draft power
Production of medicines for animals
Genetic breeding
Integral Forestry and Agriculture of Mountain (Plan Turquino)
Forestry production, coffee, cocoa, and apiculture
Production of Tobacco (involved agriculture production, pre-industrial, industrial and commercialisation.
Infrastructural programmes
Programme of logistic support to production
Development of the food processing industry
Soil Conservation and improvement.
Production of bio-fertilizers and biostimulators
Production of biological plague controls
Development and validation of mechanization technologies
Development and validation of irrigation and drainage systems
Animal health and plant health.
Agricultural Programmes of the Ministry of Sugar
Forms of Organising Production
State Enterprises
Agricultural Enterprises of the Ministry of Agriculture (MINAGRI) and Ministry of Sugar (MINAZ)
Sugar Enterprises
Agricultural Enterprises of the Ministry of the Revolutionary Armed Forces (MINFAR) and of the Ministry of Interior (MININT).
Fincas of the Youth Worker's Army (Ejercito Juvenil del Trabajo - EJT)
Ministry of Superior Education fincas for self-consumption (canteens) and can sell their surplus in local agro-markets and among workers.
New State Fincas of the New Type: The State enterprises and fincas which did not have conditions to become UPBCs were converted into the State Farms of the New Type know and (GENT) these fincas have bigger autonomy compared with old State fincas and to the UBPCs.
Fincas for State institutions' self-Sufficiency (Fincas de Autoabastecimiento estatal)
Agricultural Polytechnic Institutes
Enterprises of Acopio and provision of services and insurance
Basic Enterprise Units (UEBs)
Mixed Enterprises (e.g. Mariel Special Development Zone)

Granjas Urbanas: These have three functions: a) administrative and executive, b) productive -production of vegetables and fresh spices- and commercialisation in both directions buying and selling, as well as selling agricultural inputs and technical services; and c) to catalyse communication and knowledge exchange between producers, different education and research institutions, technicians and other community actors. Since their inception until the consolidation of the USAFP had grown to 195 across the country. Each Granja Urbana is responsible to the Ministry of Agriculture's enterprise in the municipality. Each Granja Urbana adhere to the Municipal GNAUS: formed by the vice-president of the local government, politically assisted by the PCC, and other organisations in the region. The local point of contact for the Granjas Urbanas is the government official located within the Consejos Populares, which maintains fluid communication between members of the GNAUS and the producers, community and other social actors. Granjas Urbanas are the middle point between the producer and the consumer and between the producer and the Ministry of Agriculture (Rodriguez et al. 2006).
State related Cooperatives
Coperative of Agricultural Production (CPA)
Basic Unit of Cooperative Production UBPC
Private individual producers
Campesino* and *guajiro (peasant or farmer in English) are terms used to refer to people working the land without differentiation, whether it is working in a State-enterprise, cooperative, individual-family finca or parcela. The terms are also used for waged worker, day labourer, cooperative worker or self-employed and generally used as small-scale campesino.
Disperse small-scale producers or *campesinos* independent producers' owners of land who do not belong to any form of cooperative. They are overseen by the Ministry of Sugar MINAZ and the Ministry of Agriculture, by 2017 there were 31608 (ONEI, 2017).
Producer: a person working on the land can also be named a producer or a worker without any differentiation.
"Usufructuarios" are natural or legal persons who received land in usufruct from the State by 2017 there were 287107 (ONEI, 2017).
Cooperative of Credit and Services (CCSs) (Explained in Appendix 4.1).
Parcelero/as are independent producers holding '*parcelas*' or small plots of land of around 800m2 to 2500m2 giving by the State in usufruct under the resolution 356 of 1993 (Gaceta Oficial 1994) and 852 of 2003 (Gaceta Official 2004). Valdez-Paz (2009) comments that parceleros who existed before any legislation on land in usufruct were illegal occupations or rented land from the State of small plots of land in suburban and rural areas. This form of production decreased with the cooperativization of the land but later in the 1990s reappeared during the Special Period. By 1998, the amount of land in parcelas reached 12,900has given to around 52,500 individuals for family self-subsistence (Valdez-Paz, 2009). Many of these parcelas have evolved into integral fincas with mixed crops and animals for household subsistence and became part of the Suburban Agriculture Programme. Production in parcelas is not presented in the country's annual statistics of agricultural production (ONEI, 2017:12), and are not expected to sell produce to the State, their production is for family consumption and any surplus can be sold in the supply and demand market.
Individuals renting land or '**arrendatarios**' from the State by 2017 there were 3061.
Cuentapropistas are self-employed worker who can be or not owners of their means of production. They operate in agriculture sectors as well as other trades such as artists, writers and other intellectual workers. Those working agriculture are "workers authorised to commercialise agricultural products in the three pilot provinces. They are wholesale and small retailers, street vendors of agricultural produce or 'carretillero'" (Gaceta official 35). They are not subject to labour contracts with legal entities and do not receive wages or salaries and are subject to pay taxes. Also called private worker.

Source: Prepared from (Rodriguez-Nodals, Companioni-Concepcion and Herreria-Martinez, 2006; Valdez-Paz, 2009; Garcia-Alvarez *et al*., 2014; National People's Power Assembly, 2014; ONEI, 2017c)

Appendix 5.1: Food sovereignty as understood by research participants

First Category: People without knowledge not willing to respond. These were primarily people who were involved in the food system only as consumers and sometimes as producers. As well as not knowing the concept there was unwillingness to give an opinion.
Second category: participants without knowledge but willing to comment
To be free to choose the food that you want.
Food sovereignty is what I produce so I don't have to depend on others.
Food sovereignty is what we need, to be able to eat, meat and fish, more variety of food There is sovereignty, but I don't know how they control it, in the east [eastern region of the country] things are more regulated than here.
Consuming adequate and balanced food.
To produce for people, to have food, when there is a lot of production the prices can go down, avoiding speculation. The problem is that sometimes you have to compete with the speculators.
That you have the right to access food in agromarkets, selling points and the bodega.
Third category: A researcher explained that since FS was a term that was not on the country's policy agenda, it was difficult to influence decision-makers on the concept, therefore instead the expression used was 'sustainable agriculture on an agroecological basis'. Another researcher explained that one of the attempts to understand food systems in Cuba was through an initiative in which a group of actors assessed all the critical factors affecting food systems. She explained that, "the collective who worked on this initiative explored the possibility of using the FS framework, but it was discarded as we thought that it did not cover the institutional and organizational dimension. Instead, we opted for the concept of food sustainability which we argued is more encompassing of all the dimensions that comprise the food system". The investigation was later published in the book: "*Estudio de los Factores Críticos Que Inciden en el Ciclo de la Sostenibilidad Alimentaria en Cuba* " (Garcia-Alvarez, Tejeda-Gonzalez, and Hernandez-Morales, 2014).
The contrast between food security and FS, was expressed in this category. Some respondents used the term FS interchangeably with terms such as food security and sustainable development, but a few others said that they were different. For example: "Food sovereignty is a political concept and food security is complemented by it. The thing with Cuba is that we don't depend on the decisions of others" (Interviewee, SG17). For some participants the FS concept was directly related to the country being independent from transnational companies and not being limited by the impact of the US blockade, for instance in accessing technology and other inputs. Researchers, who were directly involved in the development of organic agriculture in the country, expressed that agroecology was the necessary basis to attain FS, therefore both had to be considered as interdependent (Interviewees, SG22, SG34, SG41, SG36).
Fourth category: collectively discussed perception of FS during the National Workshop on Food Sovereignty (attended by 70 people).
These are the responses that emerge from the work in groups prior to the presentation of the LVC food sovereignty framework and six Pillars.
· The country being able to produce food sustainably.
· Limiting dependency on external inputs.
· The impact of the US blockade on the country.
· "To have food sovereignty is to be able to decide what you eat not to depend on another's decision even if you have to import food, because the reality is that no country produces its food 100%. I have freed myself and produce what I want. You know why? Because I have my own organic fertilizer. I ensure that the manure that I use is free of contaminants. That, is healthy food sovereignty" (Interviewee, SG40).
· "To speak about food sovereignty is complex as there are limitations with the seeds, and soils have low productivity. To have food sovereignty you must have conditions e.g. seeds, access to biofertilizers, but we don't have this because of the blockade. This meant that we had to go the agroecological way. The other problem is that no one wants to work in agriculture. Our cooperative wants to use cutting-edge technologies, but it is very expensive. The Granja Urbana has been created to help producers near the towns, and although production is not enough, it contributes to feeding the Cubans." (Interviewee, PL7).
· "Since the Triumph of the Revolution there is food sovereignty as there are no transnationals in the country. Before, 80% were transnationals, the capital and production were foreign. Now production is for the benefit of the population. Cuba decides over all that it produces. The mixed enterprises are regulated by the State. Every Cuban household has lunch and dinner. The ration card offers the minimum, things like beans, rice. Everybody receives that. None go to bed hungry in Cuba. The problems that we have are with the commercialisation and processing." (PS8).

Comments during discussion in the workshop's plenary organised under the six FS Pillars
1. Working with Nature: this is the model of agriculture and the implications of decisions about methods, technologies and allocation of resources and dependency on external inputs. This was expressed by several participants as: "The need to allocate resources to the most productive systems, to have food sovereignty". "The biggest problem that we have is that we continue looking into the past, the paradigm is to go back to the 1980s", "It is not a secret that technological packages are expensive, but the producer still thinks as 40 years ago that production is impossible without chemicals". "We cannot go back to what is happening in Camaguey, where a lot of money is put into irrigation systems and for chemicals which damage the soil and waters, also the use of big tractors. Instead you can invest in a small tractor and a yoke of oxen". "We have to start by rethinking if what we need is resources or if what we need is to use the resources that we have more efficiently". An example was given in which the government was investing on the most productive agroecosystems, which included several million CUP. The link between agricultural production and the processing industry was made as "before we used to talk about agro-industry, now that is undeniable. It is necessary to avoid losses. It is not necessary to produce more but to distribute better". A participant argued "In this problem of sustainable food sovereignty, we must take forward agroecology. That is what will help us to reduce costs". Producing healthy, nutritious and safe food was a theme that everyone agreed on. This theme was related to both producing with respect for the environment and ecosystems and reducing dependency on inputs.
2. Valuing Food Providers: The small-scale producer needed to be supported and incentivized more. This was expressed as follows
"being on the spot as a producer I would say if I have been given the land and I am not producing you can take it, but if seven years ago I was selling a bunch of lettuce for one peso and now I am selling it for five pesos, is because before I used to pay 30 pesos for a load of organic fertilizer and now, I am paying 650 pesos. So, this must be regulated by the State because in Cuba there is no other body to make national decisions and it has to be like that, otherwise the Revolution gets out of our hands. So, the State must evaluate the organisations involved [government entities] too, it is not only the producers to blame."
"I have seen thousands of agroecological practices in my visits to producers, their food is excellent, plentiful and produced economically using environmentally friendly methods. With those fincas, it is not a concept but a reality. There is a group of peasant families who are self-sufficient. Some of them have said that the only thing that they go out to buy is salt. We have to have a positive vision and start promoting them, without so much academic theorising, and to try to support ANAP so it can grow".
"I would not like to see blame placed on the producer who has a lot of work. To convince a young person to go to the countryside, it is necessary to demonstrate that he is not a producer from the time of our grandparents, that he is a producer of the 21st century, that he has at least one computer and that there is internet access. We should not criticize the producer, there are other problems that we must be aware of."
3. Localising of Food Systems as presented by the FS, resonated with the focus on the municipality as the 'local' space in which the SAP was to be implemented, the process of land redistribution in the suburban areas, and the decentralisation of the commercialisation of agricultural produce. The latter was perceived as an opportunity to encourage the lowering of prices, as market prices can increase threefold between leaving the finca and reaching the consumer. It can also help to enhance local capacity for decision-making. The implementation of decentralisation and strengthening of the municipalities was perceived however as a difficult process: "There are hundreds of criteria for the real implementation of it, but changes take work and a change of
The impact of the dual market in the prices was expressed as: "Food production is for people and not for agribusiness, but the reality that we are living now is that the market "game" determines prices and not the real production cost. This is why it is possible to throw away unsold food after 5pm, rather than selling it to people more cheaply. Moreover, you cannot have a situation in which some things are sold with one criteria and other things sold with another…besides there is a problem in the Cuban situation, the first thing is to do away with the double currency, which is an issue that seems to never come to an end". Similarly, the issue of prices was related to the impact of food dumping. This was exemplified by the Cuban poultry producers. "Cuban production of poultry is frozen because poultry meat is imported from the USA and the Cuban producer cannot compete with the prices of that. Of course, Cuban producers do not suffer because of this, as is the case with Mexican producers because we have a thousand other things that we can do, and we have social guarantees which prevent us going to the wall. But that is why LVC demands protection from the transnationals."

4. Putting Control Locally: Issues of governability related to regulation of prices and markets and its impact in all dimensions of the food system was one of the most debated topics among participants in the workshop. Prices and markets were associated to different actors. Producers for instance were affected as the costs of production had increased dramatically, consumers since they were exposed to problems of speculation, lack of affordability due to low wages and issues of provision of healthy and safe food. Distributors and producers who have to understand that food is not for making business or enriching themselves. A producer explained on this topic "I prefer to sell my produce to the State for 5000CUP rather than selling to the middlemen for 5500 and allowing them to gain at my expense". The regulation of markets and prices was directly connected to the State; as a participant stated: "to have food sovereignty both the State market and the liberated one have to be regulated by the State."
Overall, the responses emphasised the link between FS and the role of the State as a fundamental factor to ensure that all parts of the food chain were regulated, and that people had access to healthy and sufficient food through the ration system and by earning enough money in their salaries. The State, through its decision-makers, was seen as the agent which had the power to change situations, and it was felt that decision-makers should be present in debates like the one they were having. Equally, there was a strong sense that individuals should work for the common good.
These different angles were encapsulated to an extent by one of the workshop's participants: "Producers have to pay their workers a just wage, then they need to receive a just price for their produce, then a trader who is selling food in the neighbourhood has to sell it at a just price, so that he earns and the population can afford to buy food. All of these are different but at the same time are the same thing. So, who is in the middle of all of this? The State. The one that needs to regulate and make sure that people have enough food to eat."
5. Building Knowledge and Skills: The role of institutions and their knowledge was highlighted as an important asset that needed to be maximized. "The challenge for Cuban science is to incorporate traditional peasant culture, which was efficient, to make it more efficient. We have more than enough scientists, but how many go to help campesinos". "There is need of local systems of accompaniment and technical services appropriate to sustainable agriculture, with services of technical assistance, training, equipment and inputs to put into the hands of the people who received the land". On the other hand, someone voiced that "given the concern that everyone has about giving land in usufruct to old people who cannot use it productively, young producers should have a lot of incentives such as computers and internet access and stop giving small-scale producers such a hard time". The emphasis on science and institutional knowledge was contrasted by the voice of producers who commented that traditional knowledge was key and needed to be recovered.
6. Food for People and whether there was food security and its connection to food sovereignty was expressed by various participants as a problem of dependency. This was made evident in a comment "Food security in the 1980s: we could eat everything, there was diversity of foodstuffs and prices were accessible, everybody could buy food, but 80% of that food was imported and subsidized. Producing one litre of milk cost 4CUP ($) and it was sold for 20cents of a CUP. There was food security. But there is the importance of being sovereign and not dependent. If my food system is dependent it is not sovereign. As regards food security in Cuba, there was a time when people denied the word food sovereignty, they used to say that what we needed to have was food security. And there are still some well-known economists who say that Cuba cannot have food sovereignty.". Another person added to this point that "We are not going to have food sovereignty or food security so long as we have the blockade, that causes us economic harm."

Source: Author