LUND UNIVERSITY
Faculty of Social Sciences

Graduate School

SIMT25, Master's Thesis (Two Years) in Development Studies
Spring Term 2011
Supervisor: Anders Lund Hansen

Livelihood strategy or Lifestyle choice?

A study of middle and high-income urban farmers in Mumbai.

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Acknowledgements

I would like to take this opportunity to thank the people without whom this project wouldn't have been possible. Thank you to Preeti Patil and the wonderful Urban Leaves team for taking the time to answer my many questions insightfully and patiently. Thank you to Anders Lund Hansen, my supervisor, for the continued faith in my work and for all the coffee, theoretical discussions and chat's about dinosaurs! It was Alistair Fraser at the national University of Ireland, Maynooth who sparked my interest in the global food system and encouraged me to pursue this thesis, otherwise I could have been writing about any number of things that I wouldn't have enjoyed nearly as much.

Thank you to my mother Alice for being so proud of her little academic. I am grateful for the support of my baby sister Lynn who kept me smiling and positive throughout this experience with the mantra of Dory the fish - 'Just keep swimming'! To Gustav, who bought me the first herbs for my own balcony farm and who has listened to my constant thesis monologues, thank you it has been much appreciated.

I am grateful to the faculty of both the Development Studies programme and the Human Geography department who have been exceptionally kind and supportive during my time at Lund. Thank you to everyone who has provided support, reassurance and encouragement along the way, especially my ally in the battle against the capitalist food system Robin.

Abstract

Urban Agriculture (UA) in becoming more visible globally, in part due to the crisis of the food system in 2007-8 but also due to recognition of the benefits of the practice in providing food, biodiversity and contributions toward sustainability. UA is considered in this thesis as a form of 'food system relocalization' which provides an alternative to the global food system. Relocalizing food systems can contribute to the 'right-sizing' of economies advocated by sustainable degrowth. I investigate how UA is constructed in Mumbai and the reasons why middle and high-income urban farmers chose to engage in the practice. This study has a qualitative methodology comprising of a case study of Urban Leaves - a citizen initiative promoting UA, online interviews and analysis of discourse relating to UA in Mumbai. From the study UA is practiced as a lifestyle choice among middle and high-income urban farmers, the main focus of which is in providing local, organic food using agro-ecological farming practices. UA is a means to contribute towards a reconnection with nature, healthier lifestyles and the sustainability of Mumbai.

Key Words: Urban Agriculture, Food Sovereignty, Degrowth, Local Food.

Declaration of Authorship

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of a Masters of Arts degree in Development Studies, is entirely my own work, that I have exercised reasonable care to ensure that the work is original, does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others and to the extent that such work has been cited and acknowledged within the text of my work.

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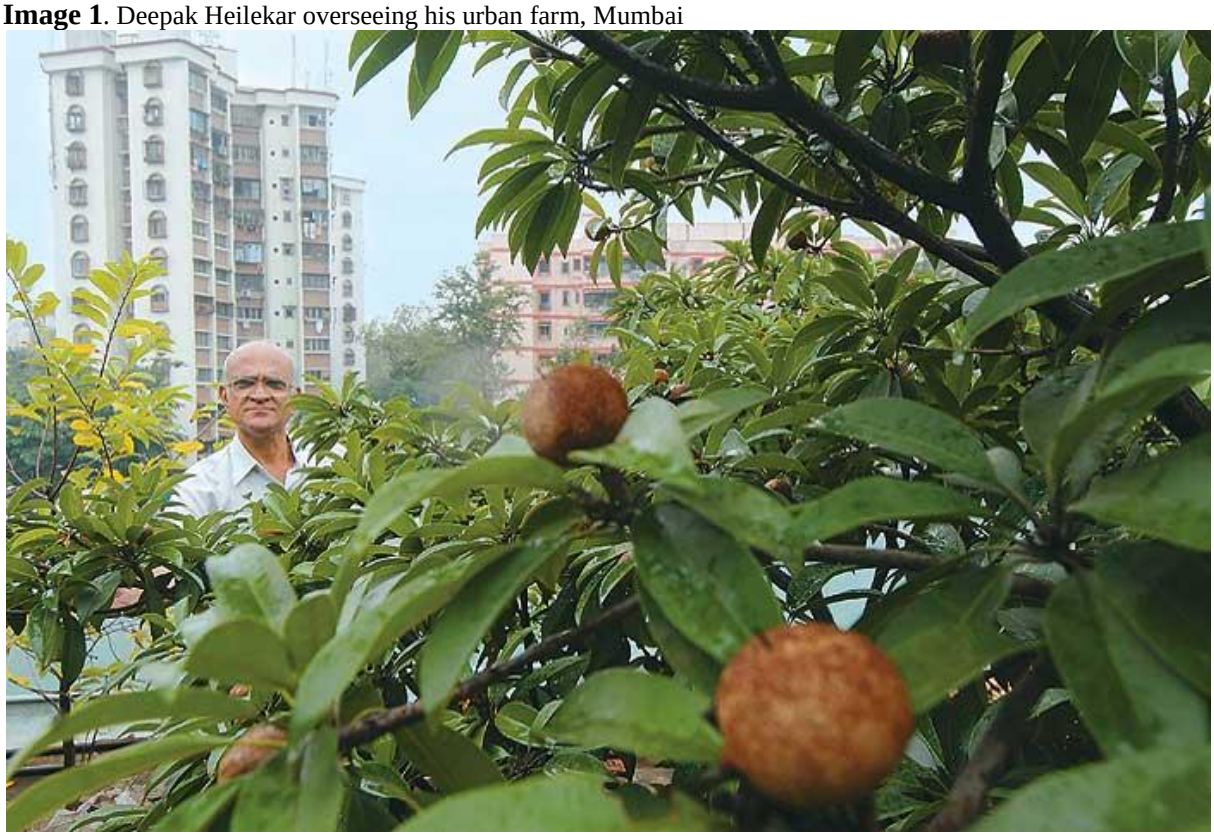

Source: Urban Leaves Website, photograph by Apoorva Salkade

Image 2. V. Y. Wilankar in her terrace garden

source: City Farmer News Website, photo by Michael Levenston

1. Introduction

1.1 Background

The term Urban Agriculture (UA) may seem like an oxymoron, however growing fruit and vegetables in the midst of a concrete jungle is becoming an increasingly visible trend worldwide. The striking green of fruit trees, leafy vegetables and fresh herbs may seem anomalous against the grey concrete backdrop of sky scrapers but images 1 and 2 show to the contrary. In the Global North keeping chickens has been legalized within the city limits in Vancouver, Canada. In London, United Kingdom 'guerrilla gardeners' plant vegetable gardens on roundabouts and other spaces perceived as misused (McClintock 2010, 1). In Madrid, Spain the social movement Bajo el Alsfalto Esta le Huerta (BAH) convert disused land into urban farms (Holt-Giménez and Patel 2009, 167) Even the First Lady of the United States has a vegetable garden at the White House (McClintock 2010, 1). The Global South is characterised by high incidences of UA; Tanzania and Kenya report increasing activity, Taiwan, Thailand and China also report growing numbers of urban farmers (United Nations Development Programme (UNDP) 1996, 25). In 2007 the Food and Agricultural Organisation (FAO) introduced an urban farming program entitled 'Food for Cities'. The programme supported UA throughout Africa and Latin America (Holt-Giménez and Patel 2009, 167). These are but a few examples which highlight UA as a global occurrence. This visibility of UA leads to a new conception of the city, re-imagining the city in social and ecological terms.

1.2 Definition of Key Terms

It is beneficial here to define the key terms that will be used and further elaborated in the course of this thesis. An introduction to the terms employed will help the reader follow the argument more clearly and to understand the way in which I am structuring this thesis. Some of the terms utilised maybe new or unfamiliar to some readers and require clarification.

1.2.1 Agro-ecology

Agro-ecology refers to the application of ecological concepts and principles to the design and management of sustainable agro-ecosystems (Altieri 1995). As such *Agro-ecological farming* seeks to integrate natural and regenerative processes in farming such as; nutrient cycling, soil regeneration, nitrogen fixing and natural pest control. Enhancing beneficial organisms and stressing pests is used to minimize the use of non-renewable inputs (pesticides and fertilizers) that are harmful to environment, farmers and consumers. The practice relies on the knowledge and skills of farmers (Pretty and Hine 2001).

1.2.2 Degrowth

Degrowth refers to the 'right-sizing' of economies based on 'an equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term' (Schneider et. al. 2010). Degrowth is advocated in this thesis as a possible alternative to the current global capitalist system.

1.2.3 Ecological Marxism

Ecological Marxism refers to the dialectic between nature and society. Nature is transformed by man through the processes of production and that man is transformed by the process of labour. Nature is part of humanity in that humanity needs nature to survive. It follows from Marx's philosophical work on man, nature and the conditions of production. Nature and man do not exist separate from each other, but must be understood through the relation of the changing processes of capitalist development (O'Connor 1998; Burkett 1999).

1.2.4 Food security

'Food security exists when all people, at all times, have physical and economic access to sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life' (World Food Summit 1996). The evolution of the term food security will be discussed later in this thesis.

1.2.5 Food sovereignty

'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' (People's Food Sovereignty Forum Final Report 2010). In contrast to previous works that utilise food security this thesis uses the newer more locally orientated, ecologically sustainable term of food sovereignty.

1.2.6 Metabolic Rift

Metabolic rift refers to the transformation of the environment by labour processes for social reproduction is referred to by Marx as 'social metabolism'. Metabolic rift is the theory that the development of capitalism has alienated people from the natural environment and traditional ways in which they transformed biophysical environment for social reproduction (McClintock 2010, 3).

1.2.7 Urban Agriculture (UA)

This thesis follows the definition of UA as 'an industry that produces, processes and markets food and fuel, largely in response to the daily demand of consumers within a town, city or metropolis, on land and water dispersed throughout the urban and peri-urban area, applying intensive production methods, using and reusing natural resources and urban wastes, to yield a diversity of crops and livestock' (UNDP 1996). UA is understood in this thesis as a form of 'food system relocalization' following McClintock (2010).

1.3 Statement of Purpose

Questions of how and where food is produced are important in discussion relating to instances of hunger for Development Studies. Focusing on urban food production adds to existing knowledge regarding urban conditions. Understanding the urban condition is essential to Development thinking due to the increasingly urban nature of the developing world. Since the 1950s, developing nations have

been characterised by increasingly rapid rates of urbanization. Today, for every urban dweller in the developed world there are two urbanites in the developing world (Desai and Potter 2008, 235). Rapid urbanization is expected to continue with the United Nations Department of Economic and Social Affairs (UNDESA) suggesting that the urban share of the world's population will nearly double by 2050 (UNDP Human Development Report 2009, 32). By 2050 cities will account for the majority of expected global population growth, with 95 percent of the estimated increase situated in the urban areas of developing countries (Davis 2006, 2).

The increasing visibility of UA poses questions for Governments, donors, Non Governmental Organisations (NGOs) and other development institutions. As such, a study of middle and high-income urban farmers in Mumbai contributes a civil society aspect to the dialogue regarding UA. This study contributes the field of Development Studies by filling a gap in the literature. There is a void in relation to studies of UA in India and specifically concerning the reasons why middle and high-income Mumbaikars who engage urban farming chose to do so. The discourse surrounding UA among these farmers is of interest as to why they chose to farm. How urban farming is portrayed by the media is also of importance when understanding engagement in the practice.

1.4 Research Questions

This thesis is structured by the following research questions:

- What are the main elements of discourse regarding urban agriculture in Mumbai?
- How is UA socially constructed among middle and high-income urban farmers in Mumbai?
- Why do middle and high-income Mumbaikars engage in UA?

1.5 Aim of Thesis

In this thesis I will undertake a case study of the social movement Urban Leaves; a citizen initiative, funded by the NGO Vidya Varidhi Trust, which promotes terrace and balcony farming. Studying the case of Urban Leaves is designed to understand why the members of the organisation chose to take part in UA. The case study will be utilised as a lens through which to examine 'the social-ecological reimagining' of the foodscape in Mumbai. The thesis is informed by a multi-theoretical perspective, characterised by collaborations among paradigms. As such this thesis is multi-disciplinary in nature drawing from Development Studies, Human Geography, Political Ecology and Ecological Marxism.

Cowen and Shenton (1996, 111) note that the burden of development is 'to compensate for the negative propensities of capitalism through the reconstruction of social order. To develop, then, [is] to ameliorate the social misery which arose out of the immanent process of capitalist growth.' This thesis recognises the social

misery of the capitalist system in the form of unjust food networks. In this thesis I build on my own previous work using Regulation Theory to explain development paradigms within the historical capitalist system (MacFarlane 2010). Regulation Theory will be used in this thesis as a starting point for discussion of the capitalist system and to trace the history of the global food system. The theory of food sovereignty will be employed as an alternative to food security to situate UA as an alternative to the global food system as a form of food system relocalization. Relocalizing food systems will be employed as a means to incorporate the theory of degrowth into this thesis. Furthermore degrowth will be advocated as development strategy that is an ecologically friendly capitalist alternative. An ecological Marxist framework will be utilised in order to structure the discussion of society and nature which arises from UA and the subsequent re-imagining of the city.

1.6 Why Urban Agriculture (UA)?

Agriculture in development literature has an overwhelmingly rural focus; this is not surprising considering the neoliberal turn that has permeated development thinking via the policies of the World Bank (WB) and International Monetary Fund (IMF) in recent decades. Agriculture is subject to a dichotomy of thinking along rural-urban, production-consumption lines, with the rural characterised as producers of the food that is required by the urban population to continue economic production of goods and services a distinction recognised by Marxist understandings of the capitalist process which will be elaborated later. However, urban agriculture is gaining importance in development thinking. The positives of the practice, which shall be discussed later, are entering discussions on ways to combat the negative ecological impacts of continued urbanisation in developing countries (UNDP 1996; Mougeot 2005; van Veenhuizen 2006; Viljoen 2005). Further study of the implications and useability of urban forms of agriculture can contribute to the development process and to the mitigation of negative environmental impacts.

Morgan and Sonnino (2010, 210) note ‘cities have acquired a new role: namely, to drive the ecological survival of the human species by showing that large concentrations of people can find more sustainable ways of co-evolving with nature’. The Second International Conference on Economic Degrowth for Ecological Sustainability and Social Equity held in Barcelona (2010) was tasked with finding making recommendations on how we can find more sustainable ways of existing with nature. Since 2007-8 there has been a rise in world food prices, with staples wheat and rice nearly doubling and tripling in price respectively (Morgan and Sonnino 2010, 209). Despite prices having decreased they are still projected to remain at a higher level than before the price surge. Given the rate of projected population increase, current technological expertise, patterns of food consumption and expected effects of climate change, global food security will need to be linked to sustainable development policies if achievements are to be made (Ibid, 210).

Harvey (2010, 215) suggests that economic, social, political, geopolitical and environmental costs of recovery from the current crisis of the capitalist system will be at the expense of the global working class and further entrench those who are on the lowest rungs of the economic ladder further into poverty. However, Harvey (2010) also notes that this could be the time for an alternative to capitalism to emerge. An alternative to capitalism which has potential can be found in theories of sustainable degrowth. Degrowth is defined as an 'equitable downscaling of production and consumption that increases human wellbeing and enhances ecological conditions at the local and global level, in the short and long term' (Schneider et. al. 2010, 512).The capitalist ideal of growth for the sake of growth is rejected by degrowth as unsustainable and detrimental to the environment (Latouche, 2010). Degrowth is based on the premise that economic growth, indicated by increasing real gross domestic product (GDP) or gross national product (GNP), is unsustainable and as such economies should be 'right-sized' (Research & Degrowth 2010). At this rupture in the capitalist mode of production, the 'right-sizing' of the national and global economies as advocated by degrowth may emerge as an alternative.

The working group of the Second International Conference on Economic Degrowth for Ecological Sustainability and Social Equity (2010) noted that 'cultural changes are a must in the relationship between people and food production; these will imply shifts to fair, environmentally sound and healthy food consumption patterns'. A shift to more localized patterns of consumption are important in contributing towards degrowth. Taking up the perspective of food sovereignty; 'citizen initiatives supporting both urban and rural localised farming must be encouraged by diverse alliances with social movements, farmers, consumers and public institutions as education, health sector, etc.' (Ibid) The working group also noted that 'agro-ecology is not an option but an imperative for farming; there is an urgent need to move from a productivist industrial model of agriculture towards a more agro-ecological integrated agricultural system of food production'. The citizen initiative Urban Leaves supported by the NGO Vidya Varidhi Trust is playing an important role in relocalizing the food system in Mumbai via teaching and community activities. Studying this organisation allows investigation of the cultural shift to agro-ecological farming practices in a developing world context.

1.6 Scope and Limitations

The project started with a literature review relating to urban agriculture. During which alternative themes emerged such as the global food system and the relation of that system to the surges in food prices from 2007-8. The capitalist nature of this system was highlighted and as such literature relating to the negatives of capitalism was also pursued. The incorporation of sustainable degrowth was included as a possible alternative to capitalism and fit well with research regarding food sovereignty as opposed to food security. The environmental

implications of UA inspired further research in ecology, also complimentary of degrowth, which led to ecological Marxist literature being utilised to form the basis of the theoretical framework and guided thinking regarding the alternative response to the capitalist system. Encompassing these elements led to focus on 'how' to change the system of capitalism and importantly 'who' can do this, and in 'what' ways. This led me to focus on urban farmers as agents of change and as such I sought out groups of urban farmers.

This thesis originally sought to investigate UA as a coping strategy of the urban poor; however, limitations that prevented travelling abroad forced a reconsideration of potential research subjects. Middle and high-income farmers were sought out because of their access to the internet as a method of communication. Mumbai has specifically been chosen as the setting of this work due to the frequency of internet connection. Mumbai is the most globally connected of India's cities (Pacione 2006, 229). Maharashtra is unequalled in the number of per capita internet connections: it has about three times as many as Karnataka, which ranks second, and about 68 times as many as Orissa, which ranks the lowest (UNDP 2001, 41). The prevalence of internet connections in the region is beneficial to this study for gathering data. Urban farmers located in e-groups and with web pages were accessible in Mumbai which is the largest city in India and is the sixth largest metropolitan region globally (Pacione 2006, 229). The state of Maharashtra, which has Mumbai as its capital, has the highest level of urbanisation among the major states in India (Visaria 1997, 269).

2. Conceptualizing Urban Agriculture (UA)

2.1 Regulation Theory and the Global Food System

This thesis uses Regulation Theory as an explanatory tool to provide understanding of the capitalist system and situate the discussion of the global capitalist food system. Using this theory allows this thesis to move from the abstract concept of capitalism to the concrete and particular discussion of UA in terms of the global food system.

Goodwin and Painter (1996, 638) term a crisis as 'a rupture in the reproduction of a social system'. Using Goodwin and Painter's (1996) definition of crisis there has indeed been a crisis of the global food system as the system has been unable to reproduce itself. Global food commodity prices have risen disproportionately to real wages. Goodwin and Painter (1996, 638) also make a distinction between a crisis *in* the system; where a crisis occurs in part of the system, and a crisis *of* the system; where the system itself is under threat. There is a crisis in the global food system which Regulation Theory will be used to explain. The crisis in this part of the capitalist system is a symptom of a crisis of the global capitalist system as a whole.

Regulation Theory is used to summarize and explain the

> paradox within capitalism between its inherent tendency towards instability, crisis and change and its ability to coalesce and stabilize around a set of institutions, rules and norms which serve to secure a relatively long period of economic stability. (Amin 1994, 7)

Regulation Theory uses the conceptual apparatus of 'regime of accumulation' and 'mode of regulation' to explain the individual phases of capitalist development. Regime of accumulation refers to a 'set of regularities at the level of the whole economy' that enable a 'coherent process of capital accumulation' which encompasses common rules of industrial and commercial management (Nielsen 1991, 22). Mode of regulation refers to the set of institutions, mentioned by Amin (1994), as the 'formal or informal "rules" that codify the main social relationships'. Essentially a mode of regulation comprises the laws, agreements and cultural norms which control the regime of accumulation and determine its form, and are required for capitalism to profit (Nielsen 1991, 22). A mode of regulation is comprised of five institutional complexes; 'the wage relation, the money form, competition, the state and international regimes' (Jessop 1995, 319). This theory is important in explaining the cyclical nature of capitalism and the ability of capitalism to suffer shocks and periods of crisis and recover.

Regulation Theory is employed here as an explanatory device to situate the crisis of the capitalist food system as an indicator of the metabolic rift between society and nature created by the processes of capitalist development. Capitalism is the hegemonic world system that has dominated economic and social relations

through increasing globalisation. The system through which capitalism operates is ultimately unstable and extractive of declining raw materials. Schumpeter (1942, 82-83) is concurrent with this notion of capitalism as unstable, labelling capitalism as a creatively destructive system. He defines capitalism as a process of industrial mutation that continually changes economic structures, in essence capitalism 'incessantly destroying the old one, incessantly creating a new one'. This process can be traced through the evolution of the global food system via processes of capitalist trade.

Morgan and Sonnino (2010, 210-211) note five trends that have emerged in the last decade that have given rise to discourse that the current global food system is in crisis. Firstly, the price surge of basic commodities in 2007-8 challenged the complacency of mode of regulation of the global North regarding the availability of low cost food products as an integral part of the capitalist food system. Secondly, there has been a sharp increase in food insecurity. Currently 2 billion of the global population of 6.6 billion are affected by food insecurity which is expected to rise with projected population increases. Furthermore, the increasing consumption levels of developing countries associated with this population rise are expected to make the demands on resources equivalent to a population of 12 billion rather than the projected 9 billion by 2050. Thirdly, food insecurity is now deemed a political matter for nations after the food riots and political protests against rising food prices which took place after the 2007-8 price surges. Indeed, Bello (2009, 2) notes that in 2007 and 2008 some thirty countries experienced violent popular actions in which thousands took part. Fourthly, the effects of climate change on the food system are anticipated to cause damage to regions that are already food insecure resulting in questions of the ethical obligation of the global North to help mitigate the problems of the global South whom have contributed least to climate change but will experience the harshest effects of it. Finally, this raises the question of land conflict and food colonialism where richer countries seek to lease productive land form developing countries exacerbating food insecurity. These trends together characterise the social realisation that there is a problem with the global food system but do not recognise the causes of this crisis.

2.1.1 Causes of the Global Food Crisis

Holt-Giménez and Patel (2009, 1) argue the global food system is in a state of chronic malaise susceptible to shocks and fluctuations where crises are experienced more severely due to skewed agricultural policies, inequitable trade and unsustainable development. Bello (2009, 4) notes that the food crisis has been traced to a variety of causes; failure of poorer countries to develop their agricultural sectors, the meatification of diets in India and China, speculation in commodity futures, conversion of food crops to biofuels production, climate change impacting production and conversion of farm land for urban real estate. Swyngedouw (2009, 602) attributes increased food prices primarily to increasing oil prices associated with the global economic crisis. Indeed, the United Nations Environment Programme (UNEP) (2009) concurs with Bello (2009) and

Swyngedouw (2009) but also notes that rises in food prices are not only limited to these factors.

Holt-Giménez and Patel (2009) attribute the global food crises to the model of capitalist industrial agriculture that has come to dominate the globe. Goodman and Redclift (1991) concur that the expansion of the capitalist food system has arisen from the industrial production of food. Holt-Giménez and Patel (2009), Patel (2007), Bello (2009) and Weis (2007) all chart the rise of current food system via the establishment of global institutions that deregulate markets and concentrate decision making in the hands of elites. The global food system has promoted the growth and increasing concentration of a small number of agribusinesses, Multinational Corporations (MNCs) and Transnational Corporations who maintain control over global food production to the detriment of; local food growers, small scale farmers, food supply, food quality, land, soil and communities which adversely affect the abilities of communities and nations to achieve food self-reliance (Shiva 2007, 46).

2.1.2 A Brief History of the Global Food System

To account for the current global food system the history must be considered within the terminology of Regulation Theory and the processes of capitalist development. To this extent I will provide a brief account of the changing regulation of the global food system in an historical context (see Lang and Heasman 2004; Patel 2007; Weis 2007; Bello 2009; Holt-Giménez and Patel 2009 for further discussion). Historically capitalism expanded and was propagated through colonial trade which transformed the market structure and relations between countries (Loomba 2005). The global food system also has roots in colonial expansion (Patel 2007, 76). Denoon (1983, 35) notes than in settler colonies establishes by Europeans in the developing world 'there was undeniably something capitalist in the structure of theses colonies. Private ownership of land and livestock was established very early'. In Regulationist terms, the regime of accumulation was established via private ownership of commodities.

Acemoglu et. al. (2008, 103) argue that the colonial structures set up in the non-settler colonies during the colonial era have persisted and mark a distinction between the current level of development of states today; the foundations laid down in 'Australia, Canada, New Zealand, the United States, Hong Kong and Singapore have formed the basis of the current day institutions of these countries'. In the cases of these countries capitalism was allowed to flourish through the establishment of private property in the early phases of colonialism (Ibid, 103) while in other areas such as Latin America and the West Coast of Africa colonisers pursued extractive policies (Ibid, 102) exploiting raw materials and labour for capitalist expansion. The colonial regime of accumulation established the precedent of extractive trade that is ecologically unsustainable. The mode of regulation was premised on extracting raw materials from the colonies to satiate the masses, new foods and drinks permeated and transformed the working classes in Europe. Tea and coffee became common place, sugar and spices entered the

diet, these new commodities fuelled the capitalist system of trade (Patel 2007, 77-79).

The commodification of nature and natural resources at a lower value than industrial outputs established an unequal trade relation between the industrialised global North and the resource rich global South. The formation of plantation agriculture is the historic backdrop to the current industrial agriculture global food system. The current mode of regulation stems from this idea that food should be mass produced to maximise profit, which has removed people from the act of growing their own food as their labour power is reallocated to other activities. It has become normal that food is something bought with the proceeds of labour activity as opposed to something produced by labour activity itself.

In the period after the Second World War the restructuring of Europe aided by America's Marshall Plan invoked thinking about development. Holt-Giménez and Patel (2009, 25) attribute the origins of the world food crisis to 'development' via the Northern focus on modernising the South. President Truman's inaugural speech on January 20th 1949 stated that 'we must embark on a bold new programme for making the benefits of our scientific advances ... available for the improvement and growth of underdeveloped areas' (From Binns 2008:81). The regime of accumulation of capitalism in the United States was premised upon increasing production. With domestic markets unable to absorb the surplus of production entry into overseas markets was necessary. The benefits of American scientific advances to aid underdeveloped areas took the form of food aid. As Holt-Giménez and Patel (2009, 24) note American surpluses were channelled into food aid for the benefit of American agro-businesses resulting in dumping of food in developing country economies at a lower price than the developing economy could produce the same commodities for. Increasingly this forced farmers in developing country to be undercut by American prices and forced out of the market resulting in increasing dependence on American food products. The mode of regulation in operation used the terminology of food aid to dump surpluses. Countries that had previously been net exporters of food commodities became net importers (Bello 2009).

The 'Green Revolution' refers to the application of Western technologies to raise agricultural production in developing countries. It encompasses the gene manipulation of plants throughout the 1960s that resulted in high yielding varieties (HYVs) of rice and wheat and the technological packages required for their production (Potter et. al 1999, 275). While the Green Revolution is heralded as raising productivity and increasing yields the subsequent social costs of land displacement, rural to urban migration and the destruction of the livelihoods of small scale farmers would beg to differ. The Green Revolution 'led to the monopolization of seed and chemical inputs by Northern companies, the loss of 90% of the South's agricultural biodiversity, the global shift to an oil based agricultural economy. . . [it] also *produced* as many hungry people as it saved' (Holt-Giménez and Patel 2009, 24 italics in original). Small scale farmers who

could not afford the transition to input intensive Green Revolution methods were forced to sell their land to larger farms.

The oil crisis of 1972 triggered a recession in the World economy and precipitated the debt crisis in the developing world in the early 1980s as Northern nations tried to recoup money lent to Developing countries for Green Revolution activities among other development agendas. The mode of regulation of the 1980s and 1990s tied the food security of developing countries to global markets opening economies to foreign investment and their markets to foreign products (Holt-Giménez and Patel 2009, 37). As in the post-War regime of accumulation agri-business triumphed over local producers, the mode of regulation that supported this phase of capitalist development was reliant on the neoliberal Bretton Woods institutions. Global agri-business consolidated their hold over the food system.

Today the global food system is controlled by a small number of trans-national corporations. Patel (2007, 99) notes that transnational corporations (TNCs) control 40 percent of the global food trade. Through mergers and corporate buy outs there are a limited number of companies that control the majority of the global food trade. Allowing the market to control food production has resulted in lower competition which favours large companies (Ibid, 104). The lack of competition results in a homogenised foodscape characterised by convenience foods. Patel (2007, 3) notes that in India foreign soft drink manufacturers and food multinationals were allowed access to the economy in 1992, within a decade cases of diabetes have risen dramatically as a result of changing diets due to consumption of these food stuffs.

The history of the global food system shows increasingly skewed trade relations between the Global North and the Global South which results in the global food crisis. The crisis of the food system has far reaching affects, while the poor are the worst affected, it affects ‘our families, our neighbourhoods, our diets, our health, the soil, the water, the forests and the air’ (Holt-Giménez and Patel 2009, 81).

2.2 Neoliberal Food Security

Article 25 of the United Nations Universal Declaration of Human rights states that ‘Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food’(UN 1948). Yet food is not treated as a human right, it has become another commodity with a monetary value subject to financial speculation (Holt-Giménez and Patel 2009, 81). Sen (2001, 161-2) notes that there are three distinct influences affecting entitlement to food. The first is endowment, the ownership over resources and wealth that establishes a price in the market. This is usually labour power. Secondly production possibilities through access to technology or knowledge of use of that technology to generate entitlements through waged labour. Finally exchange conditions through the ability to buy and sell goods and the prices of goods relative to exchange. Pretty (2009) notes there is a problem with the world food system with millions suffering from undernourishment and malnutrition despite there being

enough food production globally. Since 1950 per capita agricultural productivity has grown steadily, while this growth has slowed production is higher than demand (Weis 2007, 11).

Bryld (2003, 79) recognises that there has been a rise in UA in developing countries directly connected to the economic situation created by the Bretton Woods Institutions in the implementation of Structural Adjustment Programs (SAPs). The neoliberal focus of the programs on economic growth through market liberalization resulted in the removal of food subsidies to developing countries that sought loans from the International Monetary Fund (IMF) and World Bank (WB) which adversely affected the ability of the poor to purchase food hence the livelihood strategy of producing for subsistence. Furthermore, SAPs effected urban professionals who were made redundant under government job cuts, McClintock (2010, 16) notes that many of these professionals turned to UA to augment diets and provide income.

The SAPs further exacerbated the inability to buy food via currency devaluations which impacted upon real wages (Bryld 2003, 79). The inability to purchase food is also related to the fact that there has been a surge in the global prices for food which has resulted in a 50 to 200 percent increase in selected commodity prices. These increases have forced 110 million people into poverty and increased the number of undernourished people by 44 million. These price increases have a severe impact on development; increasing infant and child mortality, among the already undernourished people and those living in poverty that spend 70 to 80 percent of their daily budget on food attaining food is becoming increasingly difficult (UNEP 2009, 6).

2.2.1 The Evolution of Food Security

Current development doctrine as a mode of regulation uses the terminology of food security, a concept that has undergone evolution in articulation and meaning since its inception. Initially at the 1974 World Food Summit, food security was defined as 'availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices' (UN Report of the World Food Conference 1975). The market orientated approach of the concept reflects the neoliberal belief in expansion as progress exemplary of the regime of accumulation of the time. By 1983 the term was further focused on the ability to purchase food, being defined as; 'ensuring that all people at all times have both physical and economic access to the basic food that they need' (FAO 1983). The World Bank report of 1986 Poverty and Hunger introduced the distinction between transitory food insecurity; food insecurity as the result of natural disasters, conflict or economic instability, and chronic food insecurity; food insecurity associated with the ongoing problems of poverty. The report redefined food security as 'access of all people at all times to enough food for an active, healthy life' (World Bank 1986). The focus was still on access but had now come to be continued access to food, meaning the ability to continue to purchase food. The World Food Summit

in 1996 reflected scale of access to food in the again redefined definition of food security noting individual, household, national regional and global levels of food security (FAO 1996). Issues of nutrition and preference were also contained in the term. By 2002 social access to food was also added to physical and economic access (FAO 2002). In tracing the evolution of the term it is evident that economic access to food is the primary factor of subsequent modes of regulation in capitalist development.

2.3 Food Sovereignty as an alternative approach

This thesis argues that focus should be shifted from food security which is a neoliberal paradigm used by Global institutions, Governments and NGOs to a broader term that encompasses issues of localism, sustainability and culturally appropriate food. Food sovereignty is the right of each nation to maintain and develop its capacity to produce its own food with respect for cultural and productive diversity and the right of peoples to define their own food and agricultural policy (Desmarais 2007, 34). Food sovereignty seeks to redress the abusive nature of the food system. It is not a call to return to past systems of agriculture and 'tradition' but a way to shape the future in more sustainable terms (Patel 2007, 302-303).

Bello (2009, 136-137) elaborates nine tenants of food sovereignty;

- Food self sufficiency of agricultural policy.
- The right to determine patterns of food production and consumption considering productive diversity without being subordinated to unregulated international trade.
- Production and consumption of food should not be guided by transnational agribusiness but by the welfare of consumers and producers.
- National food systems should produce healthy foods of good quality that are culturally sensitive and avoid internationally standardised 'junk foods'.
- The balance between urban and rural, industry and agriculture has to be established to address the current imbalance and subordination of agriculture that results in rural to urban migrations and urban slum formation.
- Land reform should be undertaken to reverse the consolidation of agricultural production by transnational capital. Reform must also include communal and collective forms of ownership and redistribution provisions that promote ecological wellbeing of the land.
- The rights and welfares of consumers and producers have to be considered via fair pricing schemes and a reduction of subsidization led dumping of commodities driving down prices and negatively affecting small farmers. Small farmers, cooperatives and state enterprises should be recentred in policy.
- Industrial agricultural practices should be discouraged, especially those based on genetic engineering and chemical intensive forms of agriculture, as these practices are unsustainable and ultimately polluting.

- The benefits of traditional farming must be recognised and stripped of negative attitudes of being 'un-modern' outdated or obsolete. Traditional agro-ecological practices need to be rediscovered and utilised to reduce pollution and environmental degradation

Food sovereignty values elements that have been devalued by capitalism such as small scale production, peasant agriculture and the environment (Bello 2009, 137). The People's Food Sovereignty Final Report (2010) also highlights culturally appropriate food but also highlights the ecological production of food. It further emphasises the rights of those who produce food noting that the term food sovereignty; centres the rights of those who produce, consume and distribute food at the heart of the food system. The markets and corporations that currently control the food system should not take precedent. Food sovereignty can be understood as a strategy to resist the current domination by markets and corporations and to dismantle the corporate trade and food regime. Local and national economies should drive their own food economies as opposed to the global monopolies that are in power now. For local and national food systems to diverge from the global system they must empower peasant and family agriculture, pastoralist led grazing and artisanal fishing so that food production, distribution and consumption will be more environmentally sustainable. The trade involved in food sovereignty is based on transparency and guarantees fair incomes to producers and rights to consumers to manage their own food and nutrition. There is also a gender dimension of food sovereignty; social and economic relations between men and women should be equitable as should relations between all peoples, racial groups and social classes.

2.3.1 Challenging the Global Food System

Food sovereignty can be seen as a challenge to the current status quo of the global food system which has promoted the growth and increasing concentration of a small number of agribusinesses, Multinational Corporations (MNCs) and Transnational Corporations who maintain control over global food production to the detriment of; local food growers, small scale farmers, food supply, food quality, land, soil and communities which adversely affect the abilities of communities and nations to achieve food self-reliance (Shiva 2007, 46). The continued focus of food security on access to food has allowed the perpetuation of the current food system where production of food is increasingly removed from people and diverted to larger entities with the linear goal of profit via feeding those who can afford food rather than feeding everyone. Food sovereignty as the dominant discourse relating to food offers a different regime of accumulation as the focus of food sovereignty within sustainable degrowth is not concerned with constant accumulation but rather a regime of accumulation that meets current needs. The mode of regulation to support this regime of accumulation requires institutions, governance and attitudes that recognise the ecological and human benefits of meeting production needs as opposed to the continuous production that the current regime of accumulation and supporting mode of regulation is premised upon.

2.4 Ecological Marxism and the urban condition

This thesis is situated within an ecological Marxist framework and as such is concerned with the complex coevolutionary relations between society and nature (Foster et. al. 2010, 216). Marxist urban political ecology explicitly recognises that the material conditions that comprise urban environments are controlled and manipulated and serve the interests of the elite at the expense of marginalised populations (Swyngedouw and Heynen 2003, 902). Marxist interpretations of environmental change are important because of their explicit engagement with the underlying socio-natural relations that play out through the metabolisation of nature (Heynen 2006). The social metabolism of a city; the material transformation of the environment for the use of people through capitalism has contributed to a metabolic rift between humans and nature which has been elaborated by geographers and sociologists (Foster 1999, 2000; Moore 2000; Swyngedouw 2006; Clark & York 2008). Historically, Marx attributes this rift to capitalist modes of production and the inherent urbanisation and industrialisation that followed:

> an ever growing industrial population crammed together in large towns . . . produces conditions that provoke an irreparable rift in the interdependent process of social metabolism, a metabolism prescribed by the natural laws of life itself (Marx 1981, 949).

Marx further explains that capitalist production also creates a rift in natural systems, contributing to resource depletion and environmental degradation. Foster (2000) notes that in Marx's concrete discussions of socialist construction he always highlighted ecological factors and the need for a rational regulation of the human relation to nature in accordance both with the needs of human freedom and community and principles of sustainability. Marx, himself, said:

> It is not the unity of living and active humanity with the natural, inorganic conditions of their metabolic exchange with nature, and hence their appropriation of nature which requires explanation or is the result of a historic process, but rather the separation between these inorganic conditions of human existence and this active existence, a separation which is completely posited only in the relation of wage labour and capital (Marx 1973, 489).

Foster and Burkett (2000, 416) note to understand capitalism, it is necessary to grasp its dual alienation of nature and labour, the separation, Marx talks about, of the mass of the population from the natural, inorganic conditions of their being. This separation they note is exhibited in the antagonism of town and country. In promoting this antagonism capitalist production

> disturbs the metabolic interaction between man and the earth, i.e. it prevents the return to the soil of its constituent elements consumed by man in the form of food and clothing; hence it hinders the operation of the eternal natural condition for the lasting fertility of the soil. Thus it

> destroys at the same time the physical health of the urban worker and the intellectual life of the rural worker. . . . Capitalist production, therefore, only develops the techniques and the degree of combination of the social process of production by simultaneously undermining the original sources of all wealth—the soil and the worker (Marx 1976, 637-638).

Understanding cities as being created by the inherent antagonism of capitalism is related to understanding the ways social and natural processes are produced through social metabolism (Harvey 2006; Swyngedouw 2006; Smith 2008).The city is subject to ever the changing dynamics of the capitalist system, of consumption and production of space and resources creating varying urban ecologies. The environment of the city is bound in the dialectic of society and nature; processes of urbanisation create new environments and in turn human reaction to these environments (Swyngedouw and Heynen 2003, 901). The social and physical environment of the city results from the historical-geographical process of the urbanisation of nature (Swyngedouw and Kaika 2000); nature and society are linked by the capitalist processes of production (Castree 1995; Smith 1984, 1996, 1998). Indeed the capitalist domination of nature is expressed by Marx:

> If human evolution has taken a form in which inorganic nature is appropriated through increasingly complex tools (extended organs) of human labor, it is also true that these conditions of production (inorganic nature and tools) have come under the control of a very few. In this way, the mass of the population has been deprived of any birthright connection to the earth and even to air, food, sunlight, health, and so forth, insofar as these connections contradict the profitable exploitation of wage labor in the production of privately vendible commodities (Marx, 1974, pp. 359-360)

It is evident there has been a material transformation of nature into use by human society to the extent that 'No part of the earth's surface, the atmosphere, the oceans, the geological substratum or the biological substratum is immune from transformation by capital' (Smith 1990, 56). This thesis has an ecological Marxist framework; as Merchant (1992, 137) notes Marx's recognition of the interdependence of humans and nature is central to today's ecological vision. The produced spaces of cities are subject to issues of class distribution and geographically uneven development. The foodscapes of cities are also subject to the same issues of distribution and redistribution as well as the spacialities of food production and access to food within the urban environment.

2.4.1 Ecological Marxism and UA

McClintock (2010) utilises metabolic rift as a lens through which to conceptualise urban agriculture, an utilisation which I find most useful in my own theorising of the socio-spatial processes of UA. The ecological vision of this thesis is concerned with the dialectic of society and nature through the process of urbanisation and urban change. As Swyngedouw and Heynen (2003, 899) note

‘cities are dense networks of interwoven socio-spatial processes that are simultaneously local and global, human and physical, cultural and organic’ UA is an activity that is encompassed by all of these socio-spatial processes and contributes to the social-ecological re-imaging of the city. Socio-spatial theory can be understood from the stand point of different forms; territory (T), place (P), scale (S) and network (N). The emphasis placed on each is entirely dependent on the primary association of the theorist to each form. Jessop et. al. (2008) argue for a polymorphic, multidimensional understanding of socio-spatial relations that recognise that territories, places spaces and networks are mutually constitutive and intertwined; the TPSN model. Relating McClintock’s (2010) work to a TPSN model contributes to a Marxist geographic understanding of the conceptualisation of urban agriculture.

Following McClintock (2010) there are three main interdependent yet distinct forms of metabolic rift; ecological rift, social rift and individual rift. Ecological rift refers to both the particular rift in a biophysical metabolic relationship and the following spatio-temporal rescaling of production. Social rift arises from the commodification of land, labour and food at various scales and individual rift refers to the separation of humans from nature and the production of our own food (Ibid, 5-6). These forms of rift can be complimented by discussions of TPSN where the scale and networks of urban agriculture in the form of metabolic rifts are mutually intertwined and constitutive of place and territory. To exemplify this, a case study of a social movement which works in supporting terrace and balcony farming in Mumbai, India is undertaken by this thesis.

Nicholls (2009,78) notes that human geographers, like myself, have become increasingly interested in social movements as they communicate the views of civil society to the state and in doing so are affected by place, scale and space which can be viewed as complimentary of the TPSN model. In socio-spatial terms social movements transcend place and space while existing in both and operating at different scales. Ratmutsindela (2009, 199) describes social movements as movements that bring together participants who are actively engaged in changing the structures of governance that affect their lives. They are concerned with the political and social processes that impact upon society and seek to challenge the current system. Importantly, they aim to readdress power structures in society not for their own political ends but for the betterment of the society as a whole. In this sense they make use of networks as well as scale, place and territory. Undertaking a case study of a social movement utilising a TPSN framework in relation to metabolic rift to conceptualise urban agriculture has not been attempted in any literature that this project has come across.

2.5 Importance of Urban Agriculture

Urban agriculture as a system that produces food and fuel crops directly related to the local needs of areas has important implications for development and the environment. In an increasingly urban world an industry that uses waste as a basic resource is important, as is an activity that can contribute to the nutritional self-

reliance of a community (UNDP 1996, 3). UA is important for the survival of the urban poor in most developing countries. It is a response to continually increasing urbanization levels and the worsening of the economic situation of the poor as a consequence of SAPs and increasing migration (Bryld 2003, 84). For middle and high-income farmers UA is often used for nutritional purposes rather than subsistence. The presence of middle and high-income farmers is important in legitimizing the practice and can act as a catalyst for UA to spread among all social groups (UNDP 1996, 53).

2.5.1 Challenges to successful UA

It is important to be aware of the challenges facing successful implementation of UA. Firstly crop production in urban agriculture is limited by the locational environmental conditions, crops are affected by; temperature, air and soil quality, solar radiation and climate or weather patterns and access to water sources (Eriksen-Hamel and Danso 2010, 87). The environmental conditions of UA in relation to polluted urbanscapes may cause contamination of produce; furthermore UA can itself contribute to pollutants entering the food system via water and soil resources. However, recognition of these problems is the first step in combating them for successful UA (UNDP 1996, 199).

Air quality in urbanized Southern cities is typically characterised by air pollutants related to industrialisation such as ozone (O3), nitrous oxides (NOx), sulphur dioxide (SO2) and suspended particulate matter (SPM). Carbon dioxide (CO_2) concentrations and air temperatures are commonly higher in cities, and air circulation is lower. In urban areas, poor or uncontrolled burning of crop residues or municipal solid wastes, and the use of diesel fuel contributes to increased SPM. Other pollutants are related to motor vehicles and industrial sources, both of which are significantly greater in urban than rural locations. These gases cause significant damage to crops at high concentrations (Eriksen-Hamel and Danso 2010, 87). Soil quality is also affected by industrial inputs and motor vehicle outputs, soils near roadways can suffer heavy metal pollution from airborne lead and calcium from vehicle exhausts which settle on leaves and fruit crops (UNDP 1996, 199). It has been noted that atmospheric deposition is the primary method of lead contamination in leafy vegetables in Uganda, arising from high traffic density (Nabulo et al., 2006). Lead concentration in vegetables falls in direct relation to increased distance from roads, farmers are recommended to cultivate leafy vegetables at a minimum distance of 30 meters from roads (Ward et al., 1975; Rodriguez-Flores and Rodriguez-Castellon, 1982; Nabulo et al., 2006).

Soil fertility and degradation are also problems associated with UA. UA competes for scarce land resources in dense urban environments which can result in agricultural activities being concentrated on marginal lands such as; steep slopes, valley bottoms, flood prone areas or degraded lands (Eriksen-Hamel and Danso 2010). Soil fertility is also affected by UA via pollutants from chemical fertilisers and waste water runoff. Adapting to prevent soil degradation will involve increased farm management via physical intervention and financial investment.

Soil protection methods such as terraces, check dams and hedge row crops are useful but can be costly and affected by limited land tenure of urban farmers (Ibid, 88-89).

Access to water resources are often problematic for urban farmers. In most urban areas, farmers have no or limited access to water for irrigation and as a result rely on wastewater. As rates of urbanization increase in southern cities investment in water supply far outpaces that of sanitation and waste management, competing uses of wastewater for UA will continuously expand (Ibid, 90). The use of waste water to irrigate crops and feed livestock can cause food contamination if the water in not properly treated (UNDP 1996, 201). Insecure tenure of farmers results in the inability to make investments in safe water access through on site pumps or access to piped water networks (Drecshel et. al. 2006). Water runoff due to increasingly built up urban areas can have the negative effect of flooding urban crop land as can improper water drainage. Poor drainage, pond formation and flooding of agricultural lands can lead to significant loss of crops, nutrient leaching and higher incidence of soil-borne diseases (Eriksen-Hamel and Danso 2010, 90).

Larger cities in the developing world are more likely than smaller cities to have waste that contain chemicals and toxic materials. Reusing solid waste requires that waste is separated and treated prior to use, waste management systems in the majority of developing world cities are not equipped for this task. Composted solid waste which is not managed properly can also act as a pest vector in the case of rats (UNDP 1996 201-202). Eriksen-Hamel and Danso (2010, 90) note that there has been little investigation of the incidence of insect pests in urban agriculture but note that incidences should be comparable to that of rural agriculture and as such are affected by; crop diversity, rotation and pesticide use via chemicals or natural predators. As such the knowledge of farmers and their financial and time investments in UA can affect incidence of pests. Human pests in the form of crop theft and damage are also a frequent problem associated with the visibility and insecurity of urban agricultural land (UNDP 1996, 226).

UA can require more support services than its rural counterpart in relation to managing production and access to scarce resources and compensation of poor air and soil quality all of which require investment of farmers or local authorities. Investment of farmers is directly related to land tenure; if possibility of eviction form land is high farmers will not invest valuable and/or limited resources. Indeed in a number of instances local authorities actively attempt to deter UA via legal measures, policy restrictions and land zoning against it. In these instances UA is often characterised as a criminal activity in the form of land invasion and farmers can be subjected to crop destruction, crop seizing and legal proceedings against them (UNDP 1996, 213-214). The lack of government recognition of urban farming limits the commitment to and investment in UA, it can also deprive UA of valuable assistance from NGOs and other developmental organisations wishing to impact on urban food problems. Failure of government to recognise the benefits

of UA also affect access to land where land owners will not lease land to urban farmers due to lack of adequate laws governing tenancy and lease arrangements. The lending of credit to urban farmers is also affected by lack of government recognition of UA as a significant industry (UNDP 1996, 218-222).

2.5.2 Overcoming the challenges of UA

In recognising the negative aspect of UA generation of adequate responses to these negatives can be achieved and indeed have already been achieved in some cases. While poor air quality can affect UA the higher incidence of plants in urban areas due to UA has a positive effect in absorbing pollutants and releasing oxygen (Bryld 2003, van Leeuwen et. al 2010). Intercropping food crops with protective absorptive trees or shrubs can limit the absorption rate of pollutants in food crops. Eriksen-Hamel and Danso (2010, 88) note that there are interventions that may help farmers reduce pollutant infiltration; dusting or washing may be possible to remove particle matter and fine mesh netting over high-value crops could reduce large particulate matter and debris settling. These Interventions can improve the gas exchange and net photosynthesis of plant leaves reducing absorption of heavy metals. Bryld (2003) notes that increased foliage levels associated with UA can increase the humidity in arid climates and reduce radiational heating through conversion of groundwater into atmospheric humidity.

Input use in UA has the same problems as rural agriculture, over use of inorganic fertilizers, pesticides and other chemicals can contaminate ground water, soil and deposit residues in crops. The actions required to overcome this is also the same as in rural agriculture; using organic fertilizers, controlling pests by introduction of natural predators and intercropping with legumes and using green manures all contribute to more agro-ecological, sustainable agriculture (Pretty, 2009). In urban farming reusing of household waste is a convenient and cost effective practice which also recycles urban waste. Composted organic solid waste and treated household sewage contain nutrients that are beneficial to crops (UNDP 1996, 201). Bryld (2003) notes that human excreta can be used in fish farming; where fish farming can be performed in the urban location. Use of more agro-ecological farming practices in both urban and rural settings has environmental and human health benefits. Agro-ecological farming can result in higher crop yields while using fewer inputs than current input intensive agriculture (Pretty 2009; Pretty and Hine 2001).

Land tenure of urban farmers greatly affects the associated negatives of UA, recognising UA as a valid environmental, developmental and economic strategy in reducing urban poverty and negative living conditions is the first step. Farmers with secure tenure of land are more able to make the changes that prevent soil degradation, water contamination, and chemical run off. Recognising the benefits of UA allows for investment in agroeconomical farming practices that reduce pollution and recycle waste products that not only benefit the environment but benefit farmers and government spending. The visibility and support of middle

and high-income groups practicing UA can have influence on authorities which benefit all social groups.

The scale of UA varies from backyards and balconies to land invasion of urban parks, roadside verges, airport buffers and any other land not sufficient for building upon (Bryld 2003). Among middle and high-income groups urban farms vary in size and production, famers may produce for their own consumption or for entrepreneurial reasons (UNDP 1996, 59-60). The reason for UA affects the crops grown and the farming methods. Across all scales and social classes UA has the benefit of producing food for the urban population which is important to consider for development and for ecological sustainability.

3. Methodology

3.1 Philosophy of Science

This thesis uses the dialectic method as the philosophical basis for understanding reality. Dialectics is both an epistemology and a method but also an ontology (Castree 2008, 64). In the epistemological and methodological sense utilising the dialectic approach requires the theorist to take the object under study and make investigations that reveal one set of processes and make further investigations within that process to reveal other process that can arise or contradict the originally indentified process (Ibid, 65).In the ontological sense the dialectic approach maintains that social and biophysical systems contain opposing tendencies the collision of which can lead to change in or of those systems (Ibid, 64) Dialectics hold that 'elements, things, structures and systems do not exist outside of or prior to the processes, flows, and relations that create, sustain or undermine them' (Harvey 2009, 232). A dialectical understanding of reality is thus process based and characterised by change of all systems. To understand reality we must understand the changing processes that it is made up of. This thesis is informed by the dialectical method and as such is interested in the processes of change that make up the reality of the object under study; middle and high-income urban farmers in Mumbai.

The dialectical method is appropriate to use in this instance as it fits with the wider theoretical framework of this thesis; 'In Marx's dialectical understanding . . . all of reality consists of relations, and any given entity is the summation of the relations of which it is a part' (Foster and Burkett 2000, 411). To this extent I utilise discourse analysis and online interviews to reveal the processes that make up the reality experienced by urban farmers in Mumbai. The relations between the farmers under study to the practice of farming, to food, to nature and to each other co-constitute the reality they experience which I am interested in understanding. I am also situating Urban Leaves within a theoretical framework that contributes towards a socio-spatial understanding of the processes of Urban Leaves.

3.2 Case Study Urban Leaves

This project has been structured using the case study principles laid out by Yin (2003) and as such began with the question of 'why people in developing countries engage in UA'. Initial investigation of urban agriculture in developing countries showed that there has been a long history of the activity and the topic has received much attention by scholars, governments, institutions and NGOs. As such why people in developing countries engage in UA is context specific and informed by the inherent social and cultural implications of each place. The positives and negatives of the practice have been considered in terms of food security, livelihood strategies, employment opportunities and environmental impacts by UNDP (1996). In researching incidences of UA in developing countries it was noted that focus was primarily on Africa, Latin America and Asia. In incidences of UA in Asia there was little information regarding UA in

India which is why India was selected as the area of study. Mumbai was selected specifically due to the global connections of the city as mentioned previously (Pacione 2006).

Internet searches for UA coupled with Mumbai led me to Urban Leaves, a citizen initiative engaged in UA in Mumbai, as a possible case study. I approached Urban Leaves by email in February 2011 with a request to include the organisation in this thesis. My request was met with agreement and a working relationship was established. I became part of the mailing list of the organisation to receive email updates of their progress in their various projects. In performing this case study I have familiarised myself with the material provided by the Urban Leaves website, blog and email updates. I was also permitted to join the online community contained in the e-group City Farmers which is related to Urban Leaves.

I attempted to make contact with the Mumbai Metropolitan Region Development Authority (MMRDA) to add a governmental aspect to this study. It was my aim to incorporate the views of the MMRDA as part of the mode of regulation operating in Mumbai. However as the MMRDA did not wish to be included in this work I focused on the civil society and cultural aspects of the mode of regulation.

3.3 Methods

As my research questions deal with attitudes and views of middle and high-income urban farmers in Mumbai a qualitative methodology was selected. In keeping with the dialectic method I investigated the processes involved in UA among middle and high-income urban farmers in Mumbai by using online interviews to give insight into how those engaged in UA perceive the practice. I also analysed media discourse relating to urban farming in Mumbai to construct relations and changing attitudes towards the practice. These qualitative methods allow me to build up the processes and relations involved in this case. To build a holistic picture of Urban Leaves I situate the organisation in terms of a TPSN framework. This is to aid understanding of the social movement without the benefit of participant observation. Using this framework allows Urban Leaves to be considered in a socio-spatial context and situates understanding of its practices in the geographic terms of territory, place, space and network. This framework is an explanatory tool to assist in building a case study of the movement.

3.3.1 Online Interviews

Interviews are a method that can permit rich insights into people's experiences, opinions, values, attitudes and feelings (May 2001, 120). As this case study is situated in Mumbai, India online interviewing was the most viable option as a research trip was not possible. The interviews were organised in an asynchronous fashion via creation of an online form that interviewees could fill out at their convenience. To perform the interviews a Google form was created with a list of questions (see Appendix 1). As the case study for this thesis is Urban Leaves interviews were disseminated to the participants of this social movement via the email list of the organisation. A link to a Google form was sent to Urban Leaves participants by Preeti Patil (one of the cofounders of the organisation) as I was not

able to have access to the private email list of the organisation. The City Farmer e-group was also contacted and the link to the Google form was sent to the group via email and also left on their message board for anyone who wished to participate in this research. An explanation of the research was included with the questions so that the interviewees understood the reasons for this study.

The interview questions are formulated to allow the interviewees to give as much or as little data as they are comfortable in providing. As the purpose of the online interview was to gain insight into why the interviewees are engaged in urban farming the questions were designed accordingly. The first three questions were designed to open the interviewee up to further questions, giving them something familiar to talk about as in 'question three What do you grow?'. Question four and five regarding why the interviewee is engaged in urban faming and any negatives they find with the practice are designed to be generative questions following Strauss (1987), a generative question stimulates the line of investigation in profitable directions. Questions six to nine were designed to gather information regarding Urban Leaves and the relationship between the organisation and the Vidya Varidhi Trust. Questions ten and eleven aim to provide information related to the scale of UA. Questions twelve and thirteen are generative questions regarding the social class of the interviewee and their perception of the social class of other urban farmers. Question fourteen is included to investigate whether the interviewees have any knowledge of the term food sovereignty. The final question is an open question that allows the interviewees to give any other information they feel might be relevant.

The limitations of using online interviews are that the sporadic generation of information that can be achieved through face-to-face interviews is lost. Body language and intonation cannot be accounted for and as such subtle information is not recorded and interviewees cannot be probed further on issues that arise during interview that would be possible with face-to-face interviews. Furthermore, with online interviewing interviewees need not take part if they so desire without offending or having to explain why to the interviewer, in this case distance acts as contributor to non-response. Face to face interviews would allow for a more spontaneous dialogue but asynchronous online interviews allow the participant to reflect on their answers (Flick 2009, 268). It has also been noted that online interviews have the benefit of not only transcending distance but of being able to connect with participants who would not have been comfortable being interviewed under traditional circumstances (Ibid, 266). Online interviews can also put interviewees at ease as they are conducted in surroundings familiar to the interviewee and at their leisure.

For ethical reasons the interviewees were informed that they would not be asked for names, email addresses or other information that could be used to identify them. All interviewees were assured anonymity and a final copy of this thesis should they wish. The thesis will be made available in electronic format to the Urban Leaves website so that no interviewee needs to make them self known to

me to request a copy should they wish one. The ethical implications of the research were perhaps lessened by the online nature of this study. Assuring anonymity to interviewees is facilitated by my never meeting them.

3.3.2 Analysis of Discourse

Discourse analysis (DA) is applied in research which aims to undertake analysis of conversational and written material (Flick 2009, 324). DA regards perspectives, conversations and texts to be intrinsic to social practices (Potter 1996, 105). DA comes with certain epistemological and ontological positions; language is typically underlined as central in DA as language is perceived to be central to how the social world is organized (Bergström and Boreús 2005, 305). Languages and discourses are themselves socially constructed, in that reality is considered to be constituted by the way people talk, argue, and write about the world (Potter 1996, 97-98). As such, in social constructivist terms language is regarded as a dynamic social practice that shapes identities, social relations, and understandings of the world (Jørgensen-Winther and Phillips 2002, 96). In this study DA therefore will be applied to capture Indian interpretations of urban farming practices. DA thus enables generation of deeper knowledge by studying discursive relations as social practices that form and that are formed by the social world (Bergström and Boreús 2005, 305). As this thesis falls primarily under the discipline of development studies DA will be used as it contains similar constructivist understandings. As Sumner and Tribe (2008, 70) note constructivism has a strong influence in the interpretation and understanding of development studies.

As Potter (1996, 105) notes discourse can be studied through a variety of material; conversation transcripts, formal texts, and newspaper articles. Since mass media has an influence over public opinion (Lewis 2001, 101-102) discourse regarding Indian urban agriculture will be studied through media articles. Articles were found using a Google search with the key words ‘urban agriculture’, ‘urban farming’ both coupled with Mumbai for place specific articles. Article 1 comes from Mid Day online magazine 24th November 2009 entitled ‘When revolution is the only solution’, Article 2 comes from Outlook India online magazine October 25th 2010 entitled ‘Radish on the Rooftop’, Article 3 comes from Tehelka Magazine’s online edition April 2nd 2011 entitled ‘Forget Farmville, dig this’ and Article 4 comes from the Urban Review website published January 31st 2011 entitled ‘Mumbai: Waking up to Urban Farming and Locally produced Foods’. The time of publication of articles is important as it represents an evolution of urban faming portrayal in the media over a period of 2 years. The articles feature discourse on Urban Leaves but also on wider aspects of urban farming which make them relevant to building a more holistic picture of urban farming discourse in Mumbai.

4. Findings

4.1 Public discourse regarding UA in Mumbai

Public discourse relating to urban farming in India and more specifically Mumbai can be divided into themes; economics of the practice, lifestyle and health choices, food quality and business opportunities. The articles chosen for discourse analysis have the benefit of discussing Urban Leaves but also providing a wider discussion of other participants in urban farming. There is cross over between the articles regarding the profiles of urban farmers which indicates that the practice is small in scale. While all articles do feature some of the same urban farmers the emphasis on their activities varies between articles. Article 2 has a distinctively economic focus on urban farming and its ability as a livelihood strategy to combat rising food prices. Urban farming as an economic activity is also detailed by this article to show it as a viable small scale industry. Article 3 also contains the same urban farmer as Article 2 but the focus is on the organic nature of his produce and the demand for organic food to meet changing lifestyle choices that have arisen in Mumbai. Article 3 and 4 specifically deal with urban farming and organic local food with Article 4 specifically advocating local food choices.

Article 1: Mid Day online magazine 'When revolution is the only solution' 24th November 2009

This article details small scale urban farmers who grow food crops for their own consumption. It profiles success stories of a woman with a very small balcony, the initial stages of Urban Leaves and a 28 year old man who considers urban farming a lifestyle choice. The article cites the example of Michelle Obama's vegetable garden at the White House to portray the rising visibility of growing food for consumption.

The article focuses on the benefits of knowing where food has come from and the distrust of the supply chain in Mumbai. The safety of food is an important feature of urban farming in this article. Producing food for own consumption is discussed as a lifestyle change, as resisting the negative effects of environmental damage and contributing to a more sustainable way of life. The article has a section regarding the Green Revolution in India to contrast the 'natural' produce of urban farming with the 'unnatural' produce of modified crops inherent in the Green Revolution.

The overall theme is of making a choice to support the environment as well as the health benefits of organic produce. There is no economic discussion of the practice, only the fulfilment of reconnecting with nature.

Article 2: Outlook India online magazine, 'Radish on the Rooftop' October 25th 2010

This article is supportive of urban farming detailing the success stories and business opportunities that have arisen. Profiling the success of Urban Leaves workshops, an urban farmer who teaches workshops, urban farming pioneers from Bangalore, the Indian Institute of Horticulture Research, an urban farmer who has formed a business selling boxes of vegetables to families on a weekly subscription basis, a man who has formed a business setting up balcony gardens for a fee and as well as 3 professional people who have urban balcony farms.

The language used in the article consists of two themes; the benefits to environment and people's health and the monetary value of balcony farming. Balcony farming is claimed to reduce carbon footprints and distance from farm to fork resulting in better tasting food which lacks chemicals such as fertilizers, pesticides and preservatives. Where food comes from is held as an important issue. This is also explored in relation to cost, producing vegetables for personal use is exemplified as a strategy to combat rising food prices. The cost of urban farming is expressed as low as inputs are often recycled containers and kitchen waste exemplifying the sustainability of the practice. Urban farming for profit is also discussed by the article stating that there are business opportunities for those who can produce larger quantities of food items.

The overall tone of the article is geared towards an economic discussion of urban farming. While the article expresses the views of urban farmers that they are reconnecting with nature and benefitting the environment the author's discussion is ultimately on the financial benefits of the practice. The article has a class dimension as the participants of urban farming are mentioned as being increasingly professionals. The profiles of those included in the article are people with professional careers supplementing their incomes due to rising food prices.

Article 3: Tehelka Magazine 'Forget Farmville, dig this' April 2nd 2011

This article is concerned with ethical eating and growing food as ethically sound. It profiles 'Fresh and Local' an NGO that supports urban agriculture, Urban Leaves, an urban farmer who has a business supplying local, organic fresh produce on a subscription basis and 3 professional Mumbai residents who have urban gardens and advocate ethical eating.

While this article details some of the same cases as articles 1 and 2, the focus is different as this article focuses exclusively on eating sustainable ethically produced food. Even the focus on the business man supplying food is on the demand for his produce due to its organic nature. The language used is of urban farming as a 'cause' and advancing this cause via teaching others the benefits of healthy eating.

This article deals with space, the limited space afforded to the residents of Mumbai for the practice of urban farming. The article notes that many have

overcome this restriction by farming in disused spaces, on rooftops, balconies and in local parks. The article is supportive of the practice and deems that it is not a 'fad' that will go out of style but an ultimate change to the way we should produce and consume food.

Article 4: Mumbai: 'Waking up to Urban Farming and Locally produced Foods' January 31st 2011 Urban Review

This article details Urban Farming an organisation set up to raise the profile of UA and teach workshops in the practice. The focus is on raising awareness of the benefits of urban farming.

This article is posted by an observer to urban farming in Mumbai and as such is an opinion piece. The focus relates to growing fruit and vegetables as way of knowing where the food comes from. It talks of the benefits of turning any available space into an area for growing crops. Financial benefits of the practice are also mentioned as is the time saving capacity of not having to travel to a market to purchase foods. Urban farming as a device to cool homes is mentioned also. The articles is supportive of local and organic produce advocating shopping at local farmers markets if one does not have the time or space to become an urban farmer.

4.2 Discourse of Urban Farmers in Mumbai

I received twelve interview responses from my Google form (see appendix 2). The information gathered from the interviewees converged towards similar themes and as such the number of responses was satisfactory. The themes that emerged from the analysing the discourse related to urban farming in Mumbai were also reflected by the online interviews. In coding the interviewee responses distinct themes emerged; organic food/pesticide free food, connecting with nature, natural farming practices, food supply chain knowledge and control over food production. Returning to the data sub themes emerged; enjoyment of nature, fear of unhealthy food for children, connecting with other people, relaxation and hobbies and learning new skills. It emerged that interviewees were of similar social classes and perceived other urban farmers to be of similar or higher social classes.

While Mumbai is the area under study people involved with the e-group City Farmers also responded from locations outside of Mumbai. Interviewees from West Bengal and Pune to the South East of Mumbai also responded to the request for information. The information supplied by these interviewees has not been discounted as it adds to the wider Indian discourse on UA.

When asked why they were engaged in UA the interviews all made reference to wanting to grow their own food and enjoying a healthier lifestyle. Many noted that they enjoyed the experience of growing their own food. It was important to the majority of interviewees to know where their food was coming from and how

it was produced. Eating food that had been grown without the use of chemicals and pesticides was also important, it was noted by several interviewees that they were concerned with their children eating food that was fresh and healthy and without pesticides. All but one interviewee were engaged in growing edible plants but the interviewee was keen to note that they would be growing edible plants soon. Amongst the other interviewees there was a variety of fruits, vegetables, herbs, spices and medicinal plants grown. The majority of plants grown were common to Indian diets and were seasonal showing the localised orientation of the produce.

Further benefits of urban farming were noted by interviewees. Cooling of the home was noted as was the aesthetics of the plants. Using urban farming as a way to relax and as a hobby activity was also noted by interviewees. Overall it was expressed commonly that urban farming is an enjoyable activity.

The theme of connecting with nature emerged among the interviewees. One interviewee said 'Primarily I have always had this urge to connect with the soil and grow the food that I consume – or at least part of it.' Another interviewee noted that they wanted to 'give a feel of the soil to my children'. The connection to nature was summed up rather poetically by one interviewee who said 'to be successful in city farming one needs to understand and be in love with the unpredictable ways of nature'. The language used to describe UA was extremely positive with a focus on nature as 'beautiful' and 'joyful'.

Most interviewees noted that they knew other urban farmers with only one interviewee knowing very few. When asked about a sense of community with other urban farmers all interviews responded that they felt a sense of community apart from the interviewee who did not know many other urban farmers and one who did not understand the question. Amongst those who did feel a sense of community, they connected through sharing similar interests and giving each other advice on problems they encountered. The connection between urban farmers was expressed by one interviewee as there being 'an unspoken bond of fraternity I believe amongst all who grow plants – be [it] for food, for beauty or for any other purpose'. The notion of community was furthered by one interviewee who considered any person who had even one plant had the potential to be an urban farmer. It was noted that the community of urban farmers should expand and that the practice of UA should be taken up by more people.

In terms of problems encountered by urban farmers there was a range of negative aspects noted by the interviewees. The cost transporting of raw materials was noted by one interviewee but they were keen to note that this was the only negative aspect. The scale of UA compared to rural farming was noted by another interviewee but again it was stressed that it wasn't an important problem only a difference they had noticed. It was noted by another interviewee that there were no negatives and that the perceived negative of lack of access to raw materials could be overcome. An interviewee located in West Bengal noted that there were

negatives to undertaking urban farming and noted that ‘the path to Urban farming is difficult and needs Patience’. It was noted by three interviewees that their neighbours posed a problem; one interviewee was ridiculed for the practice while the other two noted that their neighbours had misconceptions.

Only one interviewee was not involved with Urban Leaves, they were however part of the City Farmer e-group. All of the other interviewees have been involved with Urban Leaves for periods between just less than one and up to four years. They became involved with the organisation stemming from an interest in urban farming. One interviewee had attended an Urban Leaves workshop and found the process of growing food addictive. Another had sought out Urban Leaves in order to learn more about urban farming in order to grow larger fruit plants. The learning opportunities were also mentioned by another participant who mentioned Urban Leaves as a platform to connect with and learn from other urban farmers.

Of the interviewees around half an encountered the term food sovereignty. The meaning of the term as they understood focuses on self determination of food grown and the right of the Nation to choose food crops also. The right to determine which crops are grown at individual and national level was frequently mentioned. There again was a focus on the safety of food and choosing crops that were chemical and pesticide free and not GM. The visibility of the food chain was also mentioned by one interviewee. It was noted by one interviewee that although they were not familiar with the term they would like to know more about it.

Overall, the discourse of the interviewees specifically focuses on food and issues of food. None of the interviewees mentioned the financial aspects of UA at any point. Rising food prices were not mentioned and only the benefits of agro-ecological farming in terms of non use of chemical inputs were discussed in health terms. No mention was made of cost of inputs or savings made from consuming their own produce. The questions did not have an economic focus but were designed to be open so that issues of economics could be addresses by the question regarding why the interviewees engage in urban farming and the negatives of the practice. It was assumed that there would be some mention of savings related to the practice but this was not the case.

4.3 Socio-spatial relations of Urban Leaves

The TPSN model enables ‘movement towards a multidimensional, polymorphous account based on the elaboration of sufficiently rich concepts for each of the dimensions of socio-spatial relations’ (Jessop et. al. 2008, 393) which is why it can be useful in explaining the processes of Urban Leaves as a social movement as social movements draw together notions of territory, place, scale and network. This method is important as it allows a holistic picture of the movement to be built up as part of the case study methodology.

In theorising socio-spatial relations focus on one dimension of territory, place, scale or network can result in conflation with that aspect of the entirety of socio-

spatial relations (Jessop et. al. 2008). It is the aim of this thesis to avoid falling in to this trap and to this extent explanation of the processes and implications of the social movement in an equal but relationally consistent fashion will be undertaken. Nicholls (2009,78) notes that human geographers have become increasingly interested in social movements as they communicate the views of civil society to the state and in doing so are affected by place, scale and space which can be seen as complimentary of the TPSN model. In socio-spatial terms social movements transcend place and space while existing in both and operating at different scales. Ratmutsindela (2009, 199) describes social movements as movements that bring together participants who are actively engaged in changing the structures of governance that affect their lives. They are concerned with the political and social processes that impact upon society and seek to challenge the current system. Importantly, they aim to readdress power structures in society not for their own political ends but for the betterment of the society as a whole. In this sense they make use of networks as well as scale, place and territory. Urban Leaves is concerned with the politics of the food system vis. GM crops, the movement aims to make people aware of the dangers of these crops due to a wider concern for health. The participants of Urban Leaves are actively engaged in teaching and disseminating knowledge regarding agro-ecological farming practices and the benefits of local, organic foods.

Networks are an important factor in social movements, the way they are geographically constituted shape the movement and the social dynamics that occur within them (Nicholls 2009, 78). The territorial view highlights three distinct ways in which place-based social networks play distinctive roles in social movements. Firstly, place-based relations translate general sociological attributes such as class, race, gender, etc. into meaningful political values, dispositions and interests. Secondly, place-based relations provide relational and cognitive attributes that strengthen the cohesiveness of collective actors, unifying them via a sense of place that they share. In terms of Urban Leaves the participants share a similar cognitive understanding of place in the form of Mumbai as it currently is and Mumbai as they wish it to be, the image used is of turning all balconies and terraces green (Urban Leaves Website). 'Place, therefore, refers to discreet if 'elastic' areas in which settings for the constitution of social relations are located and with which people can identify' (Agnew 1987, 8) Thirdly, the solidarity derived from place-based relations makes collective action possible. Territorial conceptions of place fuel 'localist or nationalist claims to place based on eternal essential, and in consequence exclusive, characteristics of belonging' (Massey 2004, 6). The characteristics of belonging were discussed by interviewees regarding the sense of community they felt with other urban farmers.

Network-centrism consists of a one-sided focus on 'horizontal, rhizomatic, topological, and transversal interconnections of networks, frictionless spaces of flows, and accelerating mobilities' (Jessop et. al. 2008, 391). This thesis does not aim to take a flat ontology of network-centrist understandings of Urban Leaves. Nicholls (2009, 82) contributes a relational dimension to the discussion of social

movements highlighting the various ways in which networks develop in places and can play distinctive roles in social movements like Urban Leaves. Firstly, place creates opportunities for diverse actors with similar interests to establish contact. Urban Leaves workshops at their community farms establish a place for those interested in urban farming to interact. The movement also has an imagined space, they can be contacted via their website but as noted in the discourse analysis they have a media profile as the subject of articles regarding UA. The imagined space of the Urban Leaves website allows for the interaction of dispersed persons interested in urban farming as well as those located in the fixed physical geographic space of Mumbai. The City Farmer e-group also creates an extended global network of those interested in urban farming, it also creates platform for discussion. Secondly, the interactions between these actors in social movements can help breakdown and/or reinforce power relations at different scales.

Grewal (2003) advances the idea of 'network power' to explore membership of different networks in a global sense; he claims that individuals will join the network that can exert the most power. To add the dimension of place activist nodes in places constitute and are constituted by their broader social movement space. The particular activities of the movement feed into broader social movement networks but placement in this particular space also shapes the parameters of their own action (Nicholls 2009, 82). Indeed, Urban Leaves is an initiative of the Vidya Varidhi Trust and as such derives an element of network power from inclusion in the network of the trust. Urban Leaves in financed by the trust and as such can only operate within those financial limitations. Urban Leaves is not affiliated with the Ankanksha Foundation, but cooperation is established and the relationship may become solidified in the future extending the network of Urban Leaves. The action of the movement in members generating a space for discussion and utilising the human capital of knowledge among members adds to the power of the organisation to attract new members.

Places are produced and constitutively intertwined with the territorial, scalar, and networked dimensions of socio-spatial relations. Place-centrism treats places as discrete, self contained, self identical ensembles of social ecological interactions and/or conceives socio-spatial relations principally through the lexicon of place (Jessop et. al. 2008, 391). Urban Leaves interacts in and between places and as such is intertwined with territory, scale and networks constituted in and through those relations. As already discussed Urban Leaves is reliant on both the physical space they operate within and the imagined space of their online activities. The places involved in the movement are not discrete, self contained entities they contain networks that operate at different scalar levels that also interact with each other on the territorial nation state level. For a social movement places cannot be self contained or self identical units of space, a broad range of interactions are needed at multiple scales consisting of multiple networks constituted by the differences of place that allow the social movement to encompass a range of unifying objectives.

Brenner (2005, 9) describes scale as a 'vertical differentiation in which social relations are embedded within a hierarchical scaffolding of nested territorial units stretching from the global, the supranational, and the national downwards to the regional, the metropolitan, the urban, the local, and the body'. While Marston et. al. (2005) argue for a flat ontology of scale the understandings of scale adhered to by this thesis are more concurrent with Brenner (2005), there are hierarchies of scale due to scale being integrated with territory, place and networks. The impacts of territory, place and networks influence the scalar structures of the capitalist global system resulting in a privileging of those scalar interests that can command power via the mutually constituting realities of places, networks and territories that have influence in the world system. As such scale cannot be understood in a flat ontology or as a vertical hierarchy without understanding how it is and how it constitutes place, territory and networks. For Urban Leaves the scale at which the movement operates is in flux with the relations of power that is afforded to the movement via place, territory and networks. The movement operates at and is concerned with different social scales; the movement is active at the level of the body through their understandings of GM crops and local, organic food. The scale of the body is constituted by the wider scale of India and the government's regulation of GM crops which is constituted by global markets and trans-national Agri-Business.

To explain the socio-spatial processes of Urban Leaves broader theories of social movements must also be incorporated. In a broad sense social movements result from the ways in which difference and inequalities in society are framed as a political significance by actors in order to mobilize social action. The process of mobilization in turn depends on the capabilities of social groups, the resources available, and the environment in which that process takes place (Ratmutsindela 2009, 200). Inequalities in society are framed as unjust by actors in social movements in terms of social justice where inequalities are produced socially (Newman 2009). Social justice refers to 'a set of normative approaches concerned with the fair and equitable distribution of things that people care about such as work, wealth, food and housing, plus less tangible phenomena such as systems of power and pathways of opportunity' (Hubbard and Kitchen 2008, 499). Social movements are interlinked with notions of social justice in a reactionary form where activists or participants in social movements utilise issues of injustice to mobilise political change. In terms of Urban Leaves the movement is progressive in teaching urban farming to reduce environmental degradation, bring people closer to nature which in ecological Marxist terms refers to reducing the individual rift created by capitalism. The movement is also reactionary towards dialogue on GM crops by Indian Government. The movement is non-violent but still opposes the introduction of these crops by raising awareness of their possible dangers. Urban Leaves is concerned with the ecological wellbeing of Mumbai and its residents.

Urban Leaves as situated within a TPSN framework allows a more holistic picture of the movement to be built up. Urban Leaves seeks to educate people on the benefits of local, organic and natural food and as such provides resistance to the power structure of the global food system. The movement bring together participants who advocate organic food, agro-ecological farming and alternative food networks. The movement operates in the physical space of Mumbai but also through network connections i.e the networks created through their website the movement is able to converse and interact with other movements for urban agriculture via the internet. The movement is constituted through and by their website and that connection to others, sharing their successes is part of the aim of the movement without the internet they would be limited in their access to an audience. The website allows the movement to recruit via a mailing list which creates an extended network of people interested in the movement who are not in the same physical space but can share in the imagined space. The scale of the movement via this imagined space and network connections exists at multiple scales from local to national and global. In this sense the movement is constituted through territory, place, space and networks.

4.4 Activities of Urban Leaves

Urban Leaves is currently engaged in the construction and running of urban farms at various sites; the initial farm was constructed at Maharashtra Nature Park (MNP) in June 2009. A second community farm was established at Nana Nani Park on the 28th of November 2010.The community farms are used to teach workshops on making 'amrut mitti' which is nutrient rich soil that is made from green and dry biomass, top soil, dry organic matter, and a substance called 'amrut jal' which must be prepared. Amrut jal is made from a mixture of water, cow urine, cow dung and organic black jiggery. The mixture must be kept for three days and stirred two or three times each day, on the fourth day it is ready and can be mixed with water to be added to the other ingredients for amrut mitti. The amrut jal is rich in microbes and nutrients making amrut mitti a very fertile soil for planting (for full discussion see Urban Leaves website 'Amrut Mitti in six steps'). The process was advanced by Professor Sripad Dabholkar in the 1980s as part of natueco farming. The amrut mitti is used by workshop participants to grow their own fruits, vegetables and herbs where ever they have space. Urban Leaves also provides information on how to set up natueco farms and guides to cropping patterns and companion planting which is a multi-cropping method to encourage biodiversity and sustainability.

Urban Leaves has a focus on education the younger generation and as such is also involved in creating camps for children to learn about urban farming and the environment. The camps are designed to show urban children who have become dislocated from nature and natural processes how food is grown. The camps aim to help children make sense of nature by making it part of their urban lifestyle (Urban Leaves website). The camps are held at the Maharashtra Nature Park and as part of the curriculum teach; home composting, recycling of kitchen water,

making of amrut mitti, planting vegetables and medicinal herbs, how to identify bird and insect species, how to control mosquitoes without chemicals, how to build trellises and drip irrigation and other games and activities (Ibid). The Urban Leaves focus on children is not restricted to these camps; the organisation also gives tours of the community farms to children from the Akanksha Foundation. The foundation is a non-profit organization working to educate children. Akanksha addresses non formal education through the Akanksha centre and also formal education through the Akanksha Schools (Akanksha website). This focus on the younger generation can be interpreted as a progressive way to propagate sustainable lifestyle choices and the organisations ecological view.

The organisation is involved with all age ranges from children to the elderly. Urban Leaves workshops are open to participants but there is a waiting list for those who wish to sign up. Past workshops are documented in photographic format on the Urban Leaves blog (Urban Leaves Website). The website also provides a network for urban farmers to contact each other and share ideas, people who want to volunteer with the organisation can also sign up online and there is a mailing list which anyone can sign up to receive updates on how Urban Leaves is progressing with the various projects underway.

The website also has a campaign linked to awareness of genetically modified (GM) crops that seeks to inform people about the use of these crops. Urban Leaves is dedicated to agro-ecological farming methods and as such is antagonistic towards GM crops. The website is used as a forum to highlight the discourse regarding use of these crops in India.

5. Discussion

Qualitative data gathering techniques and analysis has resulted in the answering of my initial research questions. The Mumbaikars in this study are engaged in UA as a lifestyle choice, they value local, organic foods and the experience of growing it themselves is pleasurable and rewarding. They feel a connection with nature and embrace agro-ecological farming practices to attempt to contribute towards sustainability in Mumbai. The use of discourse analysis allowed me to compile themes that were also found from conduction online interviews. The methodology of using discourse analysis and online interviews was complimentary and generated a holistic understanding of why the middle and high-income Mumbaikars under study chose to engage in UA. The dialectic philosophy of science was useful in looking at the relations of these farmers and nature and the reality of the situation as they perceive it. The discourse of farmers and the media contributed to my understanding of the reality of the subjects of this study; the fear of GM foods, the value of nature and the belief they hold that UA is a lifestyle alternative.

5.1 Discussion of research questions

5.1.1 The main elements of discourse relating to UA in Mumbai

My first research question was concerned with identifying the main elements of discourse regarding UA in Mumbai. Having pursued a case study of Urban Leaves, an analysis of media discourse related to UA and from conducting online interviews with urban farmers the main elements were identified. The main elements that emerged from all three methods had particular overlap. The main discourse regarding UA was directed towards food and perceptions of safety of food in terms of chemical inputs and GM crops. Beck (1992) argues that the notion of risk has increasingly permeated everyday life, which is apparent in contemporary representations of food and eating (Lupton 2005, 449). In the case of middle and high-income urban farmers in Mumbai this is clearly the case.

Thayer (2000, 7) note that theories and discourses are constructed and travel differently and are appropriated by social movements at different points in their development. She further notes that ‘the relationship of social movements in the South to globally mobile meanings from the North is neither a matter of simple imposition of alien conceptions, nor of totally autonomous local innovation, but rather an ongoing process of negotiation with distinctive moments’ (Ibid, 7). In this case where discourse is in relation to organic food it can be seen that Mumbai discourse is similar to that expressed in the Global North though in Mumbai there is a focus on trusting where food comes from. The issues of trust in the food chain in India stem specifically from questions relating to genetically modified crops and their perception of being ‘unnatural’ in comparison to organic products which are ‘natural’. Urban Leaves as an initiative of Vidya Varidhi Trust is influenced by the trust’s views on genetically modified crops and as the trust is antagonistic towards such crops it is understandable that Urban Leaves is also.

In analysing the discourse Articles 1 and 3 exemplify concern with food and where it comes from, noting that UA demystifies the supply chain as producers and consumers are one and the same. Risk of food contamination is reduced as the only inputs used are those known to the urban farmer. From the interviewee responses concern over GM crops and chemical inputs to farming were frequently noted. Local, sustainable and organic foods have come to be represented as more 'natural' and of higher quality than the produce of industrial agriculture, furthermore the taste of produce is held to be better than that of industrial agriculture outputs (Lockie et al. 2006; Lyons 2006; Murdoch and Miele 1999). This is a view exemplified by Articles 1, 2, 3 and 4 which all mention the taste of food produced by urban farming as being superior to purchased fruits and vegetables. In all articles different urban farming participants extol the taste of their own produce as being higher than any purchased produce. The taste of food was not mentioned in the online interviews though the interviewees did note the nature of their produce as pesticide free.

Recognised benefits of UA such as cooling of homes and recycling of waster products were evident among the discourse of urban farmers. In this sense the traditional positives of the practice as recognised by the UNDP (1996) are experienced as a result if UA in Mumbai. The negatives of the practice as detailed earlier in this thesis were not highlighted by the qualitative research undertaken. As the research was qualitative and focussed on the attitudes and social construction of UA in this instance it could be that these negatives were experienced by interviewees but not considered to be as important as the positives they detailed. Also as this study dealt with middle and high-income farmers issues such as land tenure and access to water are negated as the farmers dealt with had gardens, rooftops, terraces, balconies and window boxes to use in UA. It was noted that access to raw materials for farming was not impossible among this group; their socio-economic status may act as a facilitator in their access to materials and inputs.

The characterisation of UA as a sustainable farming practice emerged as a central theme. From studying Urban Leaves and their method of natueco farming the negatives of urban farming can be minimised. Natueco farming utilises waste products to enrich soil nutrients, kitchen waste and kitchen waste water are commonly used. The workshops taught by Urban Leaves focus on agro-ecological farming practices which reduce food contamination problematic of chemical input farming practices. In agro-ecological farming chemical runoff into the water supply and ground contamination are eliminated. The practice of making and using amrut mitti adds nutrients to soils instead of being extractive.

The financial aspect of UA did not emerge in either the interviews or the case study though it did receive limited attention in the analysis of discourse. UA as an industrial activity was noted in Article 2 in the form of an enterprise that delivered local, organic produce to Mumbai residents on a subscription basis. Household

savings due to engagement in UA were also mentioned briefly by this article. The limited attention paid to the economics of the practice infers that the discourse regarding it is related to lifestyle choices rather than livelihood strategies.

Overall discourse on UA in Mumbai is positive towards the practice. From the interviewee responses some minor negative aspects emerged but they had not hindered the interviewees in engaging in UA.

5.1.2 Social construction of UA among middle and high-income urban farmers in Mumbai

The second of my research question was interested in identifying how middle and high-income urban farmers in Mumbai socially constructed the practice. The social construction of UA among middle and high-income urban farmers in Mumbai is as an alternative way of life, a reconnection with nature and as a contribution to sustainability. The food produced in UA is constructed as of better quality and having greater health benefits than industrially produced agricultural products which is concurrent with the analysis of discourse. A coupling the fear of risk of food contamination and the benefits of organic produce shows that the social construction of organic as better and more 'natural' is important to the participants. Indeed, Article 2 notes the financial opportunities of selling organic produce due to rising demand by consumers showing that more people are becoming concerned with organic produce. Furthermore, Article 4 advocates buying local and organic food if urban farming is not an available option.

UA as a way to reconnect with nature was important in the social construction of the practice. The way in which urban farmers connect with nature through utilising agro-ecological farming practices is held in high regard by Urban Leaves and emerged through interviewee responses. As their mission statement Urban Leaves aims to 'bring nature close to people' which is a theme McClintock (2010) notes as common to UA as a way to mitigate individual rift. McClintock (2010, 26) notes that for many 'lifestyle politics drives the attraction to urban farming' where participants express a wish to 'get in touch with nature' or to 'learn where our food comes from'. The lifestyle politics inherent in the situation under study is related to the construction of GM crops as potentially harmful and dangerous. The Indian Government regulating a GM crop is seen a potential risk and as a separation from nature.

5.1.3 Why middle and high-income urban farmer in Mumbai engage in UA

My final research question was why middle and high-income Mumbaikars chose to engage in UA. The social construction of the practice plays a primary role in this. The discourse surrounding UA in Mumbai also adds clarification, as the discourse was positive it contributes towards the social construction of the practice in positive terms. The perception that UA allowed participants to reduce the risk inherent in industrially produced agricultural products and the construction of those products as 'unnatural' contributes to engagement in UA. In interviews interviewees frequently mentioned they were engaged in urban farming

to know where their food came from. Interviewees also frequently expressed that they became part of Urban Leaves to learn more about urban farming and to be able to grow more varieties of fruits and vegetables. Engagement in UA is a choice rather than a necessity as financial imperatives were never mentioned. The social construction of UA as connecting with nature is important in why middle and high-income Mumbaikars become urban farmers. The construction of organic food as more 'natural' also ties into this. Producing food in a 'natural' ecologically conscious way is the main objective encountered.

5.2 Discussion of Theoretical significance

Using Regulation Theory to situate the discussion of the crisis in the global food system gave this thesis an abstract theoretical starting point. Applying Regulation Theory to the global food system retrospectively allowed the situation of past and present regimes of accumulation and their modes of regulation to be identified. It was also possible to note that the current global system has encountered a rupture which can be utilised as a point of departure for a more sustainable system to emerge. The system advocated by this thesis is degrowth. Degrowth is a non radical alternative to the capitalist system as it allows the right-sizing of economies as opposed to an overhaul of them entirely. Limiting production and consumption to ecologically sustainable levels is possible. Indeed as it was noted previously the world currently produces enough food to feed the global population but hunger is caused by the inability to establish access to food (Pretty 2009). In the case of the food system relocalizing production and consumption via UA is consistent with food sovereignty and contributes towards a shift away from industrial agricultural practices that is necessary for degrowth.

Incorporating food sovereignty into the discourse of UA in Mumbai would be beneficial to engaging with wider discussions of UA and degrowth. While only a minority of those interviewed had any understanding of the concept of food sovereignty, their conceptual construction is important. The general understanding of food sovereignty was as the right of a nation or person to choose what and how they grow food. The explanation of this term by interviewees was related to genetically modified crops which further exemplifies the importance attached to 'natural' food in their consciousness. The term food sovereignty did not feature in the discourse of Urban Leaves, however, the principles of the term did. The focus of food sovereignty on ecologically and locally produced, culturally appropriate food is contained within Urban Leaves and discourse surrounding UA in Mumbai. The interviewees exhibit a cultural shift towards ecologically sustainable practices which is concurrent with degrowth. For degrowth to be implemented a shift away from industrial agriculture is necessary, while urban farming in Mumbai is small scale it has potential to offer an alternative.

The cultural attributes that support food sovereignty are evident in this case study. Cultural shifts towards recognising the benefits of organic produce and local production are relocalizing the foodscape in Mumbai which can be seen to be a precursor to the establishment of alternative food networks across scales. Despite

the fact that this study was unable to ascertain if UA is being practiced among the poor or lower classes due to sampling limitations, a cultural shift among the middle and upper classes is still beneficial to development as it legitimises the activity of urban farming. Middle and upper class participation facilitates social acceptance of the practice of UA and reduces possible stigmatization which could inhibit uptake of the activity by others. Through increasing visibility of UA it brings discussion of the activity to the forefront of public discourse from which point it can enter political and governmental consciousness.

Urban Leaves as an organisation provides insight into changing attitudes towards current lifestyles. While the organisation is not hostile to the capitalist food system it does provide resistance to it by advocating that people make healthier consumption choices; growing their own food in an agro-ecological fashion, eating locally produced food that is organic and being aware of genetically modified crops. The organisation's concern towards GM crops highlights disillusionment with the industrial form of agriculture which characterises the global food system. The perception if these crops as being potentially dangerous show the questioning of the regime of accumulation that sustains industrial agriculture as the dominant form of agriculture.

The agro-ecological focus of farming practices carried out by Urban Leaves and the farmers under study is important in highlighting the urban aspects of agro-ecology. Agro-ecology is commonly situated in rural discussions of farming practices. The importance of the method being carried out in an urban context adds legitimacy to the claims that agro-ecological practices can function as an alternative to industrial methods. The increasing visibility of successful non-industrial methods perpetuates the claims of Pretty (2009) than agro-ecological agriculture can feed the growing global population and furthermore it contributes to consolidating cities as ecological and political actors as consistent with Morgan and Sonnino (2010).

The ecological Marxist framework of this thesis was beneficial in understanding why the urban farmers feel the need to reconnect with nature. The metabolic rift created by the processes of capitalism was felt by the farmers though they did not describe it as such. The impulse to connect to the soil, as mentioned in the online interviews, is concurrent with Marx's view that capitalism results in the alienation of people from the soil through the process of labour. The processes of capitalism result in an individual perception of self as separate to nature, McClintock (2010, 29) notes that this form of rift can be overcome more easily than the other forms of metabolic rift as it exists at the level of the individual; 'by physically laboring the soil, sowing seeds, cultivating, harvesting, and preparing food, UA mends individual rift by reengaging individuals with their own metabolism of the natural environment'. The urban farmers in this study through creating amrut mitti soil and planting and growing their own crops are able to reconnect with their food and their own labour power to produce food.

5.3 Discussion of Methodology

The qualitative data gathering techniques utilised by this thesis have resulted in the answering of my research questions to my satisfaction. From my methods I was able to ascertain that the Mumbaikars in this study are engaged in UA as a lifestyle choice, they value local, organic foods and the experience of growing it themselves is perceived as pleasurable and rewarding. They feel a connection with nature and embrace agro-ecological farming practices to attempt to contribute towards sustainability in Mumbai. The use of discourse analysis allowed me to compile themes that were also found from conducting online interviews. I found the methodology of using discourse analysis and online interviews to be complimentary and able to generate a holistic understanding of why the middle and high-income Mumbaikars under study chose to engage in UA.

Using an online method of gathering data was beneficial to this study. The interview responses were concurrent with the discourse used by Urban Leaves but as the interviewees were affiliated with the movement that is to be expected. The responses given by the interviewee that was not part of Urban Leaves did not diverge from the rest of the interviewees. It would be beneficial to have been able to reach more possible interviewees to see if discourse varied outside of the movement. Analysing the media discourse surrounding UA in Mumbai, however, was also convergent to the discourse of Urban Leaves and the interviewees which does show a degree of generalisation across methods.

The dialectic philosophy of science informed this study to focus on the relations of the urban farmers and nature and the reality of the situation as they perceive it. The discourse of farmers and the media contributed to my understanding of the reality of the subjects of this study; the fear of GM foods, the value of nature and the belief they hold that UA is a lifestyle alternative. The dialectic processes involved gathering qualitative data to build up a holistic picture of the reality of the urban farmers under study. The use of the TPSN framework also allowed the situation of Urban Leaves within socio-spatial processes.

5.4 Limitations

As a whole I did not encounter many obstacles to the completion of this study. The most pressing concern I did encounter was related to the online interviews. Initially the Google form used for the online interviews was created by Preeti Patil of Urban Leaves using the interview questions supplied by myself, the privacy of this form was set by Preeti and as such possible interviewees had to make a request to be allowed to submit information. To overcome the limitation of access to the form posed by this privacy I created a second form with the same questions. The level of privacy of the form allowed anyone in possession of the link to the form to submit information. This was done so as not to deter anyone who wanted to submit information from submitting because of the process of having to request access to the form. Had I not created a second form with more open access I

would not have received enough information to complete this study as only three of the interview responses were generated by the first form.

6. Conclusions

6.1 UA as a Lifestyle Choice

The images that preceded this work (images 1 and 2) portray the outcomes of successful UA. This work has been specifically concerned with people like those in images 1 and 2, urban farmers in Mumbai. The reasons why middle and high-income urban farmers in Mumbai choose to engage in UA has been the focus of this study. The study was conducted to add to existing literature regarding UA and to illuminate UA in India specifically. In studying why middle and high-income urban farmers in Mumbai are engaged in UA it emerged that the practice was a lifestyle choice. The changing attitudes to UA and local food in Mumbai constitute the reality of urban farmers and the organisation Urban Leaves. The relation of nature and society as created by Urban Leaves gives understanding of the wider foodscape among the middle and high-income farmers in this study. Their reality of the Mumbai foodscape is related to the contamination of food by the chemical inputs associated with industrial agriculture and with GM crops. Engaging in UA allows the monitoring of food in terms of safety and chemical inputs. The construction of UA as producing 'natural' crops is in contrast to construction of GM crops as 'unnatural' and potentially dangerous. Agro-ecological farming practices emerged as central to the construction of UA as beneficial to the urban condition. The local and organic produce of urban farmers in Mumbai allows urban farmers to feel connected to nature and that they are contributing towards ecological sustainability.

6.2 Wider Implications of Study

It is not my aim to blindly recommend UA as a miracle cure to the issues that plague cities. It is not the case that UA can cure all the problems associated with an increasingly urban world. It is the case, however, that UA can make a contribution to the way the food system is structured, how food is produced and how the city is conceptualised.

6.2.1 Food Sovereignty and the Justice of the Food System

In undertaking this study Regulation Theory was utilised to direct the flow of information contained in this work to move through abstract concepts to the concrete situation of Mumbai. Having used Regulation theory retrospectively to look at capitalist development from the colonial period to the present this paper has shown the global food system was established via consecutive modes of regulation in historical regimes of accumulation that privilege global elites at the expense of the larger minority. The crisis of the global food system was as a result of the continued concentration of the food system and the focus of economic access to food. And as such the food system needs to be reordered to address the concentration of power among the global elites. Utilising food sovereignty terminology incorporates a shift towards sustainable, local food systems that are culturally sensitive. Development strategies can no longer operate

on the macro scale of the free market but must focus on the micro scale of local situation specific factors.

6.2.2 Issues of Food Production

This thesis highlighted that preference for local, organic food is not isolated to the Developed world. Through the case study, online interviews and analysis of discourse local food emerged as a primary concern in Mumbai. Knowing where food has come from and actively engaging in the process of growing food demystifies the supply chain and reassures consumers that produce is healthy. In this thesis the local food system was premised on agro-ecological farming practices which have wider implications for how food is produced. The production of organic food at the scale of the individual highlights that organic produce has the potential to be more widespread. Locally produced foods are advocated in degrowth thinking as they resituate the food system towards seasonal production that reduces environmental degradation. Local food networks also provide produce that is culturally specific. This has implications for re-thinking the current level of industrial thinking.

6.2.3 UA and the social-ecological re-imagining of the city

This study also aimed to add to theoretical understandings of UA in the social-ecological re-imagining of the city as a space of food production. The theoretical framework of ecological Marxism provided explanatory power in relation to the theme of nature which was encountered throughout literature on urbanization and UA, the relation between society and nature in central to the creation of urban environments. The alienation of humans form nature is explicitly discussed in ecological Marxism as a result of capitalist development. The reconnection with nature through the process of social metabolism and labouring the soil was highlighted by the qualitative case study of Urban Leaves and emerged via the online interviews conducted. Inhabitants of cities can overcome the metabolic rift created by processes of capitalism by incorporating nature in their everyday lives through UA. The implications for the sustainability of cities in relation to UA encompass food production, waste recycling and community development.

6.3 Suggestions for Further study

Further study on UA among the lower classes and poor in Mumbai would be beneficial to undertake, due to the limitations of the author this study could only rely on internet access to interviewees which focussed the discussion on UA among middle and upper classes in Mumbai. Travel to Mumbai would overcome this sampling problem and give insight into whether UA is practiced at all social scales. As noted previously the MMRDA was not available to contribute to this study, further study could as a result focus on governmental attitudes to UA. The gender dimension of UA among middle and high-income farmers was not covered by this study. As the gendered dimension of food production activities is incorporated in food sovereignty literature a gendered analysis could build upon this thesis.

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8. Appendices

8.1 Appendix 1 Interview Questions

1) Age
2) Where is your urban farm?
3) What do you grow there?
4) Why are you engaged in urban agriculture?
5) Have you found any negatives in practising urban agriculture?
6) How long have you been involved with Urban Leaves?
7) Why did you become involved?
8) How much of your time is spent with the organisation?
9) Do you know how much support comes from the Vidya Varidhi Trust?
10) Do you know any other people who are urban farmers?
11) Do you feel a sense of community with other urban farmers?
12) What social class would you consider yourself to belong to?
13) What social class do you consider other urban farmers to belong to?
14) Have you come across the term food sovereignty?
    If so, what do you understand it to mean?
15) Any further information you wish to include?

8.2 Appendix 2 Interview Responses

Interviewee 1
1) 44
2) @Kolkata,West Bengal,India
3) vegetables n fruits
4) Hobby and to give a feel of the soil to my children
5) Yes
6) less than a year
7) to know more and to learn from others experiences and share thoughts.
8) Only through emails. No personal interaction yet
9) No
10) Very few
11) No
12) Upper Middle Class
13) Similar or above
14)
15) the path to Urban farming is difficult and needs Patience.

Interviewee 2
1) 52 yrs
2) around my home in Navi Mumbai
3) Spinatch,Tomatoes,currey leaves,beans,mint,onions,papaya,chillies,medicinal plants and flower plants
4) Imy family gets to eat chemical free food, the activity of farming gets me to relax and be free from tension, keeps the surroundings of our home cool and gives my family a natural atmosphere
5) neighbours object to the activity because of misconceptions
6) 1.5 years
7) to learn new ways of growing our own food
8) 3-4 hours a week, some times more
9)no
10)yes
11)yes
12)middle class
13)middle class
14) a country that can produce sufficient food for all its citizens
15)

Interviewee 3
1) 45
2) mumbai
3) tomatoes,chillies,spinach,brinjals,peppers,bittergourd
4) enjoy it
5) nope
6) 2-3years

7) enjoy it and pesticide free fresh produce
8)none
9)none
10)yes
11) yes -to an extent
12) educated elite
13) socially consious
14) yes - non dependence
15) to be successful in city farming one needs to understand and be in love with the unpredictable ways of nature

Interviewee 4
1) 39
2) pune
3) vegetables, fruits, herbs, spices
4) for food, medicines and good karma
5) isolation and ridicule from neighbours
6) i am not a member of urban leaves
7) I was concerned for the food my child was eating . The more I started finding out about the urban food supply chain, I more shocked I was. I decided I had to make a start to know where my food was coming from. Urban agri was the logical next step.
8) None
9) No
10) Quite a few.
11) Yes
12) middle class
13) upper and middle class, very few in working classes
14) yes, food supply chain that is visible and in control of the community that consumes from that supply chain (supply chain could also include local production)
15) The big flip to global urban agriculture will come from the lower classes, specially the urban poor in the third world. If they start adopting it, they could trigger the collapse of the industrial food system.

Interviewee 5
1)51
2) Mumbai
3) Lots of flowers.. will be graduating to veggies soon
4) I love plants.. they somehow have the magic to reduce ones stress
5) Yes, some people in our building who are concerned that they may attract mosquitoes
6) 1 year
7) It is an amazing community who share my values of love of plants, cultivation using natural methods without any chemicals and amazing results with amrit mitti
8) Minimal

9) The research and technology
10) All of the people on urban leaves
11) Absolutely. Whenever any one of us has any problem, there are many in the community who have solutions. I used to have mealybugs and someone suggested I spray an extract of soapnut. It worked wonders - much better than any of the insecticides that all the gardening consultants recommend
12) middle
13) middle
14) sorry
15)

Interviewee 6
1) 27
2) Thane city
3) Lemon grass, ginger, curry leaves, colocasia, yam, drumsticks, coriander, chillies, flowering plants
4) to grow food in a organic way .. for the joy of creation.
5) none so far
6) 1.5 years
7) wanted to start gardening as a hobby and wanted to learn how to do it in a organic way.
8) less than 5%
9) Yes
10) yes
11) yes
12) Middle income group
13) Same.
14) No
15) No

Interviewee 7
1) 58
2) terrace of my bungalow
3) fruits- mulberry, pomegranate, guava, spices, cucumber, chillies, mint tulsi etc
4) way of life
5) no
6) 1 year
7) to share and learn
8) about 10 hours a month
9) no
10) yes
11) very much
12) upper middle class
13) upper middle class
14) ownership over food, can decide to grow what i like
15)

Interviewee 8

1) 35
2) Window space.
3) not many plants ; basale, curry leaves, papaya, bael, red wood, chilly, vinca, aloe vera, ajwain, aboli and any seeds of eaten fruits that starts growing. like some months ago had tomato, karela, sweet melon, pudina
4) To grow vegies & enjoy the food without agro-chemicals & GMOs.
5) these are just few home grown plants which does not suffice the family, much has to be bought from the market.
6) Since its foundation
7) To support & encourage Preeti (it is her dream) and of course to help spread the concept & use of Amrut mitti alongwith spreading the joy to be with plants, grow, eat & share the fruits of labour :)
8) Initially gave much time on formation and then only by spreading it to others through word of mouth & net. Much time is now only while preparing communication tools (booklet, etc)
9) ? support for what ?
10) yes
11) ? i do not get the question
12) ? i do not get the question
13) ? i do not get the question
14) Yes. For me it means independence to grow, share & eat safe food of my choice which is grown without use of agro chemicals & GM technology
15)

Interviewee 9

1) 40
2) Mumbai Mahim
3) Flowering plants,Green leaves,Curry leaves plant
4) Love to be connected to Nature
5) No Only positives Calming effect of plants,great feeling in community farming and connecting with people from different backgrounds
6) Almost 2 years
7)
8)
9)
10)
11)
12)
13)
14)
15)

Interviewee 10

1) 53 yrs.

2) Gorai, Borivili (W), Mumbai
3) I have a variety of veggies/fruit, herbs and flowering plants.
4) It has been my passion to grow my own food. Having learnt how to grow food the natu-eco way, I hope many will be inspired to grow their own food and live a healthy life.
5) The only negatives while practising urban agriculture is transportation cost of the raw materials while making amrit mitti.
6) 2 yrs.
7) I wanted to learn the technique of growing bigger fruits in containers, which can be achieved with the right type of soil content.
8) During workshops and other important events I lend my wholehearted support, even though I can't make it for the weekly meets due to my shift duties.
9) It has been my obervation that The Vidya Varadhi Trust lends its full support in as much as the Trustee Mr.Uday Acharya is always available during workshops and other important decision making.
10) There are quite a few of us in the city farmers group who are growing their own food.
11) Yes.
12) Middle Class
13) Middle and Upper Middle Class
14) No
15) No

Interviewee 11
1) 42 yrs.
2) Chowpatty Sea Face, Mumbai 7
3) On the terrace I grow seasonal vegetables, herbs through out the year, some medicinal plants, fruits and flowers
4) Basically to know where and how the food that I eat is coming from and the effort to grow. Now that I am into growing that I understand that even in urban setup vegetation plantation is possible, one need not have a farm to grow…..
5) No negatives in working as Urban Farmer. It is hard to find raw material, but not impossible in Mumbai.
6) 1 year now
7) Post one day workshop on Seed Saving at Van Vadi – Karjat, the mere interest converted to a full fledged activity. Started making soil (Amrut Mitti) on my terrace. Then there is no stopping….
8) Initially once a week the Urban Leaves volunteers met at Maharashtra Nature park. Since Dec 2010, Urban Leaves have procured 40ft x 40 ft area on a community park at Girgaon Chowpatty, Mumbai. We (Ubai and myself) are the core team developing the space. Visit the our urban farm thrice a week for 2 hrs. We have 7-10 volunteers working on the plantation. Many more to come….
9) We have full moral support from Vidya Varidhi Trust. They are the strength behind our achievement. One of our project is Nana Nani Park is maintained by the Nana Nani Foundation. Financial support mainly come from here for NNP.

10) Yes, I would consider all the individuals who have a single plant at home are the potential urban farmers. Some due to space constrain are ready to work in community space. The names are few, some attached with urban leaves and some not.
11) Yet we have not really met and interacted with other community farmers. So difficult to say, but I guess we all have similar interest and this like-mindedness shall bring us together and help each other.
12) well am fortunate to have a hugh terrace flat in south bombay, if that says anything!!!!
13) no idea
14) not really, would like to know more...
15) There is a need to form a bigger community of City Farmers

Interviewee 12
1) 36
2) Andheri (west)
3) Just about anything - vegetables, fruits, flowers, medicinal plants....
4) Primarily I have always had this urge to connect with the soil and grow the food that I consume - or at least a part of it. Not owning any piece of land for cultivation, I took to Urban Agriculture
5) Not really. Just that the scale and feel of it is different from farm based agriculture.
6) about a year
7) It is fun as well as a learning experience to be a part of community farming. And the sheer joy of meeting like minded people, exchanging seeds, saplings, ideas - and all that is possible through such a platform
8) My input is quite erratic - due to other engagements. But at least one day per month on an average.
9) I guess this initiative happened because of Vidya Varidhi Trust & the trust has been a major support to this organization - especially in the fledgeling stage.
10) Quite a few
11) There is an unspoken bond of fraternity I believe amongst all who grow plants - be is for food, for beauty or for any other purpose. And I find it quite easy to connect with such people.
12) A thinker, and possibly a reformist.
13) I think we may find them across all strata
14) Have heard a lot about it, especially wrt GM seeds. As I understand it, food sovereignty is a fundamental right of every human which has so far never been officially recognized - perhaps because it was never facing threat. It allows the person to choose what food he or she wishes to grow, nurture, consume, propagate, distribute amongst peers etc. There should be no external imposition on this free will of the person. Also, this free will cannot be trespassed or superceeded by way of Government policies, trade agreements and any other law. It also cannot be the cause of damage/ potential threat to any other person's food sovereignty rights.

15) I think a lot of urban people are not even aware of how food is produced, what are seasonal foods, what are food miles, about food sovereignty, about the ill effects of chemical additives in their foods. The need of the hour is to awaken and sensitize them which will happen when each person attempts to grow his/ her own food.