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Farmer discontent in periurban Bangalore: The utopia of agricultural modernization, neoliberal developmentalism and the 21st century global city

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Abstract

Today's agricultural production in periurban Bangalore is structured by deteriorating ecological conditions and lack of enabling economic environment. Many farmers live in precarity even as market logic has become hegemonic given the dominance of input and capital-intensive cash crop production, a situation exacerbated by the threat of government-driven land acquisition. In my honors thesis, I argue that epistemological assumptions regarding agricultural modernization and neoliberal developmentalism that undergird this mode of production have come to largely structure the operation of institutional frameworks and individual subjectivities. However, these "external" influences are never fully totalizable and by invoking notions of assemblage and hybridity, I contend that Bangalore's metropolitan area serves as a "site" of ongoing contestation, allowing for a critical assessment of India's current development trajectory more broadly.

Acknowledgements

At the outset, I consider this piece of work itself not simply my "own", but would characterize it as an assemblage given that it would not have been possible if not for the contributions of a whole constellation of human and non-human "actors" that have allowed me to narrate this story. Nevertheless, I hope that this piece of work exemplifies my desire in becoming a scholar-activist, something that I will continue to hone beyond my four years at Macalester. Hence, my passion for understanding processes and politics of knowledge production that underpin this honors thesis would not have been possible without the involvement of many important individuals. Firstly, I would like acknowledge the tremendous guidance of my academic advisor, Professor William Moseley who has informed my academic trajectory in terms of piquing my interests in critical geography and the qualitative social sciences since freshman year. Secondly, the fieldwork that I conducted in Bangalore would not have been possible without the financial support of an Educating Sustainability Ambassadors grant as well as on-the-ground guidance of my local collaborators at Azim Premji University. Special mention goes to Professor Harini Nagendra, Professor Seema Purushothaman, Ms Sheetal Patil, Mr Siddhartha Lodha and my main interpreter, Mr Vasu for their untiring assistance over six weeks in June-July 2014 in terms of both arranging logistical requirements and helping me grapple with the complex processes of agrarian change that are currently taking place. Thirdly, I would like to thank the other two members of my honors committee, Professor Eric Carter and Professor Roopali Phadke for their time and advice given throughout the school year to make this endeavor a success. In addition, I am grateful for the numerous conversations with Professor David Blaney on a range of critical development and political economy themes that have been instrumental in shaping the theoretical framing of this project. Fourthly, I would like to show my appreciation for my fellow seniors especially Shivangi Pattnaik and Riccardo Maddalozzo for tolerating my sustained outbursts in relation to this thesis and my fellow geography honors students for their constant support over the last year. Last but not least, I would like to thank my parents, for without their support, my pursuit of a liberal arts education in the United States would not have been possible.

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Preface

"...knowledge works its power by being affective. Its truth effects are to be measured by its force of dispersion; not by its efforts to confirm the known and the given, or the said and the seen. These latter are also functions of knowledge—but not as levers of critique, rather as sentries of the status quo. Knowledge functions critically when it releases thought ("thought" understood here as the potential to arrest, trouble, alter, even shatter, the barnacle-like deposits of accustomed or encrusted thinking)" (Gidwani, 2011, 211).

How did a Singaporean studying at an American liberal arts college in St Paul, Minnesota come to embark on a year-long project to critically understand the logics of agrarian change in India? Truth be told, I am not really entirely sure. My motivation can be attributed to a worldview that comprehends the current world-system as one that is fundamentally unjust wherein the lasting cognitive, epistemological, material and discursive aftereffects of centuries of colonialism, exploitation and domination are elided while seemingly unproblematic tropes of *development*, *modernization* and *progress* take over and are romanticized as automatically catalyzing global prosperity. Growing up in Southeast Asia (a majority of the time in Singapore) has given me a first-hand experience of being in an environment that emphasizes personal and collective adherence to unbridled capitalist *growth* as a means to guarantee individual success and the realization of a good society. Somehow, I did not take these discourses at face value and starting at a basic level of recognizing the environmental consequences of such an economic paradigm, I have today become extremely critical of managerial and technology oriented approaches that seemingly have a monopoly in the framing of solutions to complex societal problems. Relatedly, I have come to realize that these supposed value-free knowledge claims do not simply exist *naturally*, but they are created, legitimized and naturalized through historical and sociological contestation.

Hence, my critical take on interlinked environment/development issues, coupled with a commitment to realizing systemic alternatives have led me to situate my academic interests at the intersection of political ecology, critical development studies and science and technology studies. A related foray into critical agrarian studies has allowed me to understand how issues of food security, hunger and agricultural production continue to be framed technocratically for the most part. Hence, the genealogical tracing of specific intellectual histories allow a deeper understanding to why such discourses only interrogate a limited range of ideas within a pre-given narrow epistemological paradigm. In this vein, this honors thesis has allowed me to hone relevant interests in history of science, postcolonial theory, poststructuralism and politics of knowledge production. The evolution of Green Revolution discourses and logics of agrarian change in India from the 1960s up till today is a perfect example that ties these theoretical commitments together. My academic training in geography in its emphasis on space and scale has also permitted me to recognize the mechanics of knowledge flows and how they come to structure human activity in specific spatial contexts at specific moments in time.

Lastly, I acknowledge that the scholarly community that has interrogated the Indian post-independence nation-state is extremely vast and which have given rise to multiplicitous interpretations of the country's social, cultural, economic and ecological transformation over the past half-century. Specifically, I have been piqued by the work in subaltern studies, noting its origin in analyses of agrarian structures and its linkages with varying historiographical interpretations on India as well as questions of cultural identity, finding its intersection with critical development studies particularly fascinating. In addition, the work of left-leaning/Marxist economists have also provided numerous

insights to problematizing and providing crucial counterpoints to the romanticization of the narrative of India's growth story over the last half century. I hope I am able to suggest nuanced perspectives in my attempt at synthesizing different interdisciplinary theoretical and methodological standpoints that are in conversation with my fieldwork findings. This project is by no means the final word and I do not pretend to have a comprehensive understanding of the issues that influence agricultural production in India, not to mention questions of regional variability as well as specific insights into caste, religion and local culture that I do not address in this honors thesis.

Chapter I: Overview and Introduction

In 2008, the World Bank published its annual report with a specific explicit focus on "agriculture for development," the first time in 25 years that it had done so (World Bank, 2007). It posits that global food security will primarily be achieved with ever greater commitment to both the use of technological inputs and market/export-driven production centered on enhancing value-added commodity chains. This productivist argument is framed quantitatively given the dominance of representative graphs and figures to illustrate both the perceived need to increase production justified mainly on the basis of positive correlations between certain technological, economic and governance variables with growth rates and production levels.

Despite multifaceted criticisms (Oya, 2009; McMichael, 2009) that have been raised, the seemingly *neutral* representation of the food security problem has only become been reinforced since then, exemplified at last year's World Food Prize and Borlaug Dialogue in Des Moines, Iowa, which brings together on an annual basis many of the big gun stakeholders in industrial agriculture. Given the parallel celebration of the Borlaug Centennial marking 100 years since the birth of Norman Borlaug, it may come as no surprise that Sanjaya Rajaram was named this year's World Food Prize Laureate. As Borlaug's protégé in terms of sustaining his legacy of wheat breeding, this award for Rajaram appears to reinforce the importance of celebrating what Borlaug was said to have achieved whilst also ensuring that current research efforts at the International Maize and Wheat Improvement Center (CIMMYT) in Mexico where Rajaram is based, continue to be perceived to play an important role in meeting global agricultural research needs. It is also noteworthy to acknowledge that Rajaram was born in India but has become a

naturalized Mexican citizen given that Borlaug pioneered many Green Revolution ideas and technologies in Mexico in the mid-20th century before they were subsequently institutionalized in India's post-independence agricultural sector.

Plenary sessions that I attended did not depart from what continues to be an overwhelmingly productivist paradigm, grounded in unceasing faith in what are framed as infrastructures of scientific research, technological innovation and financial investment and financialization, justified on the basis of meeting the needs of the planet's nine billion population in 2050. There is also an assumption that all farmers can take advantage of opportunities through the establishment of national and international value-chain arrangements afforded by the demand of a diverse range of food and non-food crops coming from the *emerging* global middle class. It seems that recent criticisms implicit in the discussions of agroecology, food sovereignty and local foods have not been able to significantly disrupt this technocratic discourse given that the dialogue seemed to be a self-congratulatory echo chamber, glossing over questions of equity, large-scale environmental pollution and alternative forms of production. Whilst there was acknowledgment of problems such as chemical overuse and land degradation, many of the proposed solutions were couched optimistically in technocratic terms of increased productivity, efficiency and sustainable intensification that would take advantage of latest advances in solutions presented by big data, precision agriculture and the genomics revolution (Lee, 2014).

In stark contrast, my field experience in engaging with small farmers through focus group discussions and semi-structured interviews in periurban Bangalore over six weeks in June-July 2014 presented a completely different reality with regards to

continued viability of agricultural production. What I noticed were production practices constrained by deteriorating environmental conditions, increasing input costs, breakdown in nutrient cycles, reduced efficacy of agricultural technologies and lack of enabling economic environment. Despite market logic being hegemonic given the dominance of capital-intensive cash crop production over traditional modes of subsistence that existed before the institutionalization of Green Revolution infrastructures, many farmers lead precarious lives. Even as a desire exists amongst some to transition away from technological and capital-centric modes of production, many are stuck in ecological, infrastructural and economic vicious cycles. This is further exacerbated by altered village social structures and dynamics. Whereas the ideas of caste distinctions have weakened, pre-existing community solidarity, cooperation and collectivization have diminished as production have become mainly motivated around maximizing incomes. Many household members also rely on menial opportunities in garment, automobile and low-skill manufacturing facilities dotting the periurban landscape to supplement volatile agricultural incomes. What I experienced in Bangalore further aligns with recent academic conversations regarding the smallholder agrarian crisis in India and the complex dislocations caused by transitions from subsistence to market dominated production (Narasimha and Mishra, 2009; Lerche et al, 2013) portrayed in the media in recent years by rampant cases of farmer suicides recorded in many Indian states.

More broadly, it is important to acknowledge how this project of agricultural modernization is also part of the wider push to unquestionably accept the presupposed universal validity of the logic of developmentalism. This began in earnest in India with the country's first Prime Minister Jawaharlal Nehru's push in the early 1950s to

implement what is deemed to be the unavoidable and necessary teleological transformation of the country's economy from subsistence agricultural production to low and then high value industrial activity and finally towards growing the service sector characterized by the purported inevitability of fulfilling the needs of high proportions of populations who will move into urban areas in the years ahead. Hence, at one level, agricultural production in many parts of India is increasingly being subsumed under industrial logics with the intention of emphasizing specialization given relentless focus on maximizing mechanistic food and non-food cash crop production, a trend that has not allowed many small farmers to stably reproduce their livelihoods, let alone increase their standards of living. On another level, long-term prospects for agricultural production specifically in periurban Bangalore are further threatened by state-sanctioned land acquisition, which is necessary if it desires to expand and attain the ideal of a global city, characterized by the growth high-value IT, biotech and real estate sectors. Unsurprisingly, an overwhelming sentiment amongst many farmers I spoke to living in areas surrounding the Bangalore core expressed that they neither feel any direct connection nor believe that the city's development will meaningfully improve their lives.

This economic paradigm will only intensify in the months and years ahead with Prime Minister Narendra Modi's policy approach that is grounded in an even more deep-rooted commitment to neoliberal economic doctrine since he came to power in early 2014. Using the populist rhetoric of catalyzing increased growth rates that are assumed to benefit a majority (with many public statements that explicitly invoke the term "development"), Modi has rolled out a series of policy initiatives in the last year in part to further complete the unfinished project of liberalization reforms (a constant trope in

global mainstream economic discourse) to create a more business friendly regulatory environment to attract foreign direct investment and establish public-private partnerships (Wright, 2014). With specific regards to agriculture, there are policy proposals to further entrench the existing technological and capital-intensive paradigm with the potential legalization of commercial genetically modified crops, loosening of regulations on the marketing of agricultural products, scientific soil testing to underserved areas and the building of infrastructures to improve connections between farmers and potential markets (Das and Bhardwaj, 2015; Dutta, 2015; The Indian Express, 2014). In addition, there are proposals to further liberalize land acquisition laws that aim to reduce the need of obtaining consent from farmers, in the name of decreasing bureaucratic roadblocks that disincentivize what are seen as much-needed investment from the national and international business community (Prusty and Daniel, 2015).

The notion of the "truth regime" will be a recurring concept I will constantly refer to describe how certain constructed ideas regarding agricultural production and the structuring of the economy more broadly have come to be seen as objective universals. It is a term that is derived from Michel Foucault's lectures in *Discipline and Punish* where he describes how individuals come to accept the supposed the need to conform to certain universal truths about how to behave in the context of schools, prisons and the military. Importantly, its power is not mainly characterized as a top-down imposition of external ideas, but rather is manifested at the micro-level, wherein individuals over time come to *willingly* accept these ideas as *truths* and modify their behavior as a result. I apply this logic to understand how epistemological assumptions in agricultural modernization and developmentalism more broadly gain truth value at the level of the individual and

relatedly show how this conceptualization of power potentially hinders possibilities of realizing radical change. In this vein, logics of agrarian change in terms of the ongoing shift away from a subsistence paradigm towards a technoscientific and market orientation as well as how ideas underlying the economy's transformation towards a concerted push to grow "high-value" industrial, service and urban sectors remain hegemonic for the most part despite a myriad of negative effects that have already been experienced by small farmers in periurban Bangalore and elsewhere in India.

This honors thesis will attempt to answer the following question: why do dominant ideas surrounding agricultural modernization and Rostowian developmentalism in amongst small farmers and as manifested in policies in places such as periurban Bangalore remain seemingly legitimate despite significant negative dislocations that have been noted and what are the implications for the future of India's development trajectory? Fundamentally, I attribute this mainly to the emergence of Foucauldian "truth regimes" that have manifested themselves most clearly at the microlevel with the *willingness* of individuals to broadly accept the necessity of using agricultural technologies as well as the desirability of *improvement* on the basis of earning monetary incomes inherent in the logic of developmentalism that were present from the beginning of India's post-independence nation-building project. This has led many small farmers to believe that benefits of urbanization and industrialization as India becomes a global economic superpower will eventually allow for better livelihood prospects for them as well. However, despite the continued relentless romanticization of these abstracted tropes in mainstream national and international discourse, I argue that the continued implementation of policies stemming from these knowledge doctrines cannot be complete

given the possibility of further social dislocations and ecological deterioration increasingly undermine developmentalism's promises more explicitly, the inability of scientific abstractions to completely interrogate complex socio-ecological contexts as well as the persistence of traditional practices, knowledges and cultural meanings that are not completely subsumable under dominant logics. Hence, by utilizing an assemblage theory lens to understand the Bangalore metropolitan area as constituted by hybrid landscapes, peoples and institutions that are neither fully urban nor rural, we can characterize it as a "site" of ongoing contestation with regards to assessing legitimacy of developmentalist logic.

Chapter II: Methodology

In this sense, I use a mixed methods methodology in my honors thesis to allow me to understand how current logics of agrarian and economic change in periurban Bangalore are both indicative of and contribute to the larger story regarding transformations taking place in Indian society more broadly. A significant portion will consist of tracing histories of how the project of agricultural modernization epitomized by the Green Revolution moment in 1968 has become institutionalized as well as how the parallel project of developmentalism informed initially by direct state involvement transitioned to an increasingly free-market orientation in the last three decades or so. Therefore, I put this into conversation with rich secondary (theoretical) literature, a discursive analysis of primary sources such as relevant World Bank and Government of India reports as well as my fieldwork findings.

With specific regards to how I gathered my qualitative fieldwork data, I along with local collaborators from Azim Premji University (APU) were able to conduct a series of focus group discussions and semi-structured interviews in around 12 villages within 4 *taluks* or sub-districts to the North, West and South of the Bangalore metropolitan area. My local collaborators were part of a research team who were engaging in a policy-oriented long-term study of small farmer livelihood strategies not only in periurban Bangalore, but also in the state of Karnataka more broadly. As a first-timer doing fieldwork, my initial interests and research questions I came up with before arriving in India were subsequently informed by preparatory discussions with my collaborators who provided important contextual information (in terms of local politics, policies, ecological and geographical histories, land use/economic histories). The

distances of villages we were able to conduct fieldwork in ranged from 35 to 60 miles from the center of Bangalore, with the closest being at the edge of the metropolitan core on land that had already been cleared for the continued expansion of the city. Identification of the villages was done on the basis of combining what was convenient to access in addition to pre-existing information that APU had regarding where land acquisition had already taken place. An extent of snowball sampling was done by asking individuals for contacts of other farmers who were willing to speak to us. Altogether, I was able to speak to around 40 groups of farmers ranging from 2 to 15 individuals. In the case of larger groups, 3-4 farmers dominated the discussion. Interactions with the farmers took place mostly in the village's common use area, in addition to in the farmer's homes or fields as well. Most of the farmers I talked to live in villages where most households owned between 0.5 to 4 hectares of land, some of which were distributed as a result of the limited land reform and affirmative action for communities of lower castes that occurred after India's independence.

The questions I used to frame the discussions interrogated the following themes:

- Approximate age of farmer and type of production
- Changes over the past 20-25 years and what they think will happen in the next 5-10 years regarding land acquisition/land purchase, environmental conditions (water, soil, climate change), influence of Bangalore's growth, changes in labor availability and preference as well as increased industrial/factory jobs, new actors in the agricultural sector
- Questions that get at opinions/sentiments/worldviews on *development*, agrarian transitions, knowledge production/external expertise and government policies

I believe that by engaging with these farmers with local collaborators in addition to explaining our intentions in the most earnest way possible allowed us to gain their trust. Eventually, many of these interactions did not end up being mechanical formal back and forth, but rather conversations became informal discussions. On another hand, I do not claim that my interpretations fully capture all the nuances that the small farmers expressed and that my representation of their experiences in textual form in this honors thesis is by no means objective given that three languages (English, Kannada and Hindi) were used to mediate the discussions compounded by the fact that I was only present in the field for a short duration (6 weeks). Another limiting factor would be my own lack of lived experience engaging directly in agricultural production. I am firmly committed to the epistemological-methodological standpoint that there will always be a degree of incommensurability between the lived experience of research participants and academic scholarship expressed through the form of a written narrative.

Chapter III: The construction of the "truth regime" of agricultural modernization in India

Ideas surrounding agricultural modernization have been present in India for over a century and arguably began with the archival discursive portrayal of the Indian agricultural sector as *backward* and *unproductive* in the late 19th century, reinforced with a major drought in 1897, with famine events that followed in the subsequent two years. In official records, these events were vividly and in no uncertain terms with dystopic descriptions such as "barren lands of the Deccan, none too rich at best of times are fast being turned into tracts of dismal, sun cracked, desert charred earth whose friable edges are caught by the wind" (Nehru, 1989, 13). While possibly *true* to some extent, this subjective representation would easily justify the necessity of external assistance to *improve* the presupposed *underdeveloped* state of the agricultural sector. This would catalyze the founding of the Imperial Agricultural Research Institute (which would in 1947 become the Indian Agricultural Research Institute or IARI) as well as Departments of Agriculture at the provincial level in the early years of the 20th century. Beginning in 1905, each "of these provincial institutions [would have] an expert agriculturist, an economic botanist, an agricultural chemist, an entomologist and a mycologist" (Nehru, 1989, 14-15). Consequently, taxonomy studies increased with the classification of soil types into *objective* scientific categories to reductively, quantitatively and discretely assess their nutrient content self-justified the focus on the derivation and use of chemical fertilizers. The creation of discrete commodity committees in the mid-1940s such as in sugarcane, tobacco and oilseeds to coordinate research and investment and disseminate information exemplifies reductionist production approaches that aimed at yield maximization.

Furthermore, the inequitable land tenure framework in India has been a longstanding societal phenomenon given the prominence of *zamindars* (landlords) who controlled large tracts of land for hundreds of years and which lasted through British colonial rule. Rather than engaging in what would be highly contested processes of land redistribution, the British "reverted ultimately to the safe ground of suggesting that improved agricultural practices and new technology" (Januzzi, 1994, 18) would guarantee long-term food security. This approach that prioritized technological advancements over equitable access to land and smallholder well-being was especially salient in the Royal Commission on Agriculture's report of 1928, which was tasked to provide an assessment of the state of food production in the early 1900s. "Issues such as land reform were excluded from the terms of reference to ensure that the commission's work did nothing to threaten the British Government of India's working relationship with members of the landholding elite" (Januzzi, 1994, 5), highlighting that the political battles regarding the distribution of land and resources did not end up favoring small farmers.

To further justify this approach, it was assumed in the early 20th century, "without empirical evidence, that small, fragmented landholdings were inherently inefficient whereas large, consolidated holdings were inherently likely to promote economic efficiency" (Januzzi, 1994, 10) and the "Royal Commission's findings ultimately rested on the notion that India's landholding elites could become effective agents of rural transformation" (Januzzi, 1994, 19). Hence, smallholder farmer knowledge and practices that are attuned to local socio-ecological contexts are doubly marginalized, in the sense that they are not only delegitimized in the eyes of the scientific

community, but their perspectives also are not represented in official histories of Indian agriculture. As the agricultural research infrastructure was strengthened in the years leading up to independence, it was also compounded by the success in the 1930s US Midwest of "plant breeding ma[king] American farms the world's most productive even before mechanization and chemicals lengthened their lead" (Cullather, 2010, 3). An initial degree of complexity and eclecticism with regards to appropriate technological strategies that did persist in IARI-led research approaches (Saha, 2013) was to be obscured and eventually forgotten in the years ahead, especially in light of the "food crisis created by the Second World War and the Bengal famine of 1943 [with] a 'Grow More Food' Campaign initiated in 1943" (Nehru, 1989, 28).

Any remaining diverse sentiments would disappear at the moment of India's independence, when the country's agricultural sector remained dominantly represented as *undeveloped*. For it to prosper, it was presumed that it *had* to continue to embrace technological expertise derived elsewhere. Accompanying this was an impression amongst the national intellectual elite "that the people in rural areas were [neither] equipped to give expression to their own needs and interests [nor could they] be expected to be capable of action in their own behalf." For them to move away from their *uneducated* ways, they "would have to be exhorted, organized, taught or even compelled by outsiders" (Januzzi, 1994, 46-47). This internal, national discourse would already gain a developmentalist character with the intention of "chang[ing] the character of Indian agriculture from subsistence farming on small uneconomic holdings to economic farming on units of production that would benefit from economies of scale and yield a marketable surplus to meet the needs of a growing population" (Januzzi, 1994, 69).

Hence, notions of modernization were not alien to the country's first Prime Minister, Jawaharlal Nehru given his personal disconnect with rural life as "an urbanized Kashmiri Brahmin who had been educated at Harrow and Cambridge in the United Kingdom, describ[ing] himself as having been cut adrift from the outlook of peasants" (Januzzi, 1994, 38). However, rather than necessarily introducing a wholehearted capitalist market logic, "Nehru and his Congress Party colleagues had understood centrally planned development as an essential part of their nationalist campaign." Therefore, at the highest political levels, active state involvement in the economy was seen as essential in catalyzing "the route to Indian independence and prosperity [which would primarily comprise of] the production of steel, iron, machine tools, chemicals and electric power" (Latham, 2011, 68) by harnessing of surplus labor stemming from what was perceived as its *unproductive* agricultural sector. This approach of promoting industrialization from the outset of India's independence was reflected in the Planning Commission's five year plans. In the country's second five year plan, allocated resources for agriculture were already marginalized with increased emphasis on "greater public investment in capital goods production and industrialization" (Latham, 2011, 69).

This push was also influenced by the international post-War context, with the term *development* itself first entering mainstream discourse in 1949, one year after India's independence 1949 as "Point Four" of President Truman's inaugural speech. It was strengthened by Walt Rostow, a key economic advisor to the post-Truman Eisenhower presidency who proposed his stages of growth developmentalist model wherein the move from subsistence agriculture to market-oriented industrial manufacturing and finally the service sector was seen as desirable, necessary and

inevitable. (Latham, 2011). This would entail that presumed inherent potential "energies of the masses of the people [would come to be] released into channels of constructive effort aimed at greater production, greater exchange and greater consumption" (Latham, 2011, 11). Rather than merely being an altruistic initiative to *help* newly independent countries in Africa and Asia move past the dislocations resulting from colonial rule, strategic motives existed to influence governments and populations to achieve this by accepting the exigency of externally-derived solutions of "development aid, technical assistance, foreign investment and integrated planning." In official discourse, justifications for such an approach were couched in terms of the reckoned unproblematic nature of "economic growth, industrialization and rising living standards" (Latham, 2011, 3) without meaningful regard for possible incompatibility with existing socio-cultural practices.

As a result of initial disproportionate focus on ensuring the success of industrial development, "Indian planners were happy to steer US aid toward agriculture while diverting other resources into manufacturing" (Cullather, 2010, 137). In the early 1950s, India came to rely on the United States for cheap food grains to not only make up for supply shortfalls, but also to stabilize food prices and minimize inflation. At the same time, the provision of this food should not be seen as "aid" per se as it helped to reduce the US grain surplus caused by farm prices supports. Therefore, this surplus became a tool of US foreign policy, officialized in legislation "in Public Law 480 [(PL 480)], the Food for Peace program, passed in 1954, [which] expand[ed] by 1958 to more than $6 billion with the largest shipments, principally wheat and cotton, going to India" (Cullather, 2010, 142). However, it was realized that into the early 1960s that India could

not excessively rely on foodgrain imports from the United States and that it had to build up its own national capacity to increase production levels. The provision of this "cheap food [had] created an atmosphere of confidence [wherein policymakers] came to value the psychology of abundance created by PL 480." This sudden influx of these foodgrains also led to the "demand for coarse cereals--maize, millet, lentils and barley f[alling] off, [with this] shift in diet hit[ting] growers of traditional staples hard [whilst] total food production dropped triggering spot shortages and price fluctuations" (Cullather, 2010, 144). This exogenous disruption, exacerbated by already lower proportions of governmental resources provided towards the agricultural sector to some extent created the "problem" of food insecurity it purported to solve.

These ideas of market and technological superiority that slowly became dominant in governmental and bureaucratic institutions cannot be considered *natural*, but instead must be seen as being promoted by international *experts* who assumed the already existing character of "fundamental laws governing supply, demand, production and consumption [being] appli[cable] to all economies, everywhere" (Latham, 2011, 50). These *objective* abstractions allowed these interventions to be perceived by most individuals as non-ideological in that increased market-centric production bolstered by technological advancement could not be seen as biased in any way. This becomes especially salient when the socio-economic situations in different countries began to be posited as comparable on the basis of a normative reference point. Central to this would be the emergence of statistical regimes globally that allowed for modes of conceptualizing "the economy" as a discrete category or object of concern (Mitchell, 2002) and which subsequently began to serve as criteria on which government decision-

making was based upon. This included the new notion of 'gross national product' *invented* to reductively assess the success of solving "enormously complex questions about the causes of poverty or the persistence of inequality" (Patel, 2013, 11). Numbers were assumed to be imbued with a characteristic of objectivity that did not have any explicit political motive, therefore casting the project of *improvement* as one of replicative, top-down technocratic management. Many initiatives that had a singular focus on creating economic value "were designed for 'display' to produce statistical victories or as carefully staged spectacles dramatizing the fruits of modernity" (Cullather, 2010, 5) without critical assessment if communities actually desired for and gained from these transformations.

One example of this was the implementation of a wide-ranging Community Development Program (CDP) by the Ford Foundation. It was hoped that "after a period of intensive intervention, a village would undergo a collective psychological awakening, after which progress would accelerate through the peasants' own initiative. The transformed village would then become a beacon of modernity, diffusing technical and administrative innovations into the surrounding territory" (Cullather, 2010, 78). This seemingly emancipatory outlook was presupposed on the *rational* response of individuals towards ideas, knowledges and technologies that would mechanistically *improve* rural livelihoods. In this sense, it explicitly "sought more concrete psychological and physiological solutions that would address the fundamental components of human motivation" (Cullather, 2010, 189), thus assuming the existence of universal, *rational* behavior that would constitute the adoption of knowledge that would focus on maximizing output. Hence, inefficient and unproductive modes of production that are

more epistemologically complex, ecologically compatible and culturally appropriate were characterized as primitive and thus were delegitimized.

The CDP was enacted in the spirit of the country's acceptance of the paradigm of technological transformation with the signing of the US-India Technical Cooperation Agreement in 1951, which "facilitated the US government's involvement in strengthening agricultural research and education in India" (Saha, 2013, 206). This would go on to build up relevant institutional infrastructures, underpinned by the wholehearted acceptance of externally derived expertise. The country would host the "world's largest fertilizer demonstration program," which constituted the "collect[ion of] volumes of data on fertilizer use in India under different soil and climatic conditions [along with the] establish[ment of] a cartographic and a radiotracer laboratory at IARI that could conduct national-level soil surveys and prepare soil maps" (Cullather, 2010, 189). Subsequently, a significant development occurred "in 1956, [when] an agreement was reached between the Ministry and the [Rockefeller] Foundation; the foundation was to assist in the development of the postgraduate school of agriculture at IARI and assist in the development of national research programmes on the improvement of some [staple] cereal crops" (Nehru, 1989, vii). This approach would intensify into the early 1960s with Rockefeller Foundation resources going into All-India Coordinated Research Projects (Nehru, 1989) and the Ford Foundation starting its "Intensive Agricultural Districts Program [(IADP), an initiative] that grew out of its community development [efforts] the 1950s. It operated in 15 of the 320 CD districts, providing irrigation, credit, fertilizer, improved seeds and technical advice, staged to display gains in productivity rather than welfare" (Cullather, 2010, 207). A key domestic actor in this IADP effort was M.S

Swaminathan, who "in April 1962, [as a member of IARI's wheat research team] drafted a grant proposal for an intensive breeding program using dwarf varieties from Mexico, fund[ed] from Rockefeller Foundation and PL 480 counterpart funds" (Cullather, 2010, 195). This would signify the beginning of Norman Borlaug's involvement in India in the lead up to what would to become the (in)famous Green Revolution with his first visit in spring 1963. Thereafter, "Borlaug sent samples of the Mexican wheat for sowing in the fall season. When they proved up to three times as productive as local varieties, Indian officials began a national campaign to distribute the new seeds" (Latham, 2011, 115-116). This *success* was repeated in 1964 when "the test varieties of semi-dwarf Mexican wheat gave impressively high yields of 2,900–3,700 kilograms per hectare in different IARI research plots" (Saha, 2013, 306).

Arguably, the necessity for the implementation of the Green Revolution itself should be regarded as highly contested as opposed to the inevitable next step for India to achieve food security. While weather conditions did deteriorate from 1965-1967, there was no consensus on the severity of the "drought." Similar to how the emergence of statistical regimes *create* rather than merely represents reality, definitions, ideas and judgments surrounding famine and drought have to be determined subjectively as these socio-ecological (and not merely *natural*) phenomena do not have any self-evident quality in and of themselves. Rather as problems that were framed domestically, "the 1965 [harvest] forecasts originated at USDA headquarters in Washington. [President] Johnson needed to persuade Indian officials that a crisis existed [despite the fact that] statistical forecasts were vague as to the contexts of specific time and place. The ERS model [that was used] forecast a shortfall for the whole of India in annualized terms [and]

assumed causal relationships between population growth, technical competence and food availability while implicitly discounting causes such as land tenure, wages, conflict and trade relations" (Cullather, 2010, 220-221). In addition to the problems surrounding aggregation of heterogeneous conditions, the models employed resulted in widely contrasting estimates, highlighted by how the US State Department estimated a foodgrain shortfall of 18 million tons vs. 3.5 million tons given by the US Central Intelligence Agency (Cullather, 2010). In India, government departments especially at a sub-national level, "officials declared the famine a sham. Despite the drought's severity, food stocks remained adequate [with] Planning Commissioners point[ing] out hunger was more prevalent in the cities and that the problem was not food supply but unemployment" (Cullather, 2010, 223).

In light of this, the initial dominant representation of the Green Revolution especially towards the international audience undoubtedly expressed a sentiment of unparalleled success of an effort to alleviate concerns over starving populations. Official aggregate statistics in "February 1968 pointed to a record year, sharply above the previous year and modestly above the 1964-1965 high, [with empirical observations recording] railways [running] out of freight cars and the government beg[inning] filling school buildings, sugar mills and theaters with grain" (Cullather, 2010, 232). Nevertheless, as a result of the continued belief at the national level in focusing on technological solutions as a means to solve problems surrounding food security, resources devoted to the Indian Council on Agricultural Research (ICAR), an organization under IARI would increase from 61 million rupees in the pre-Green Revolution third five-year plan to 2.52 billion in fifth five-year plan rupees and 5.48

billion rupees in the sixth five-year plan. By the 1980s, this agricultural research infrastructure would comprise of 71 coordinating projects, 1290 cooperating centers and 23 universities based on the US land grant model and 20,000 scientists in sub-fields as diverse as extension, soil science, agricultural chemistry, microbiology and entomology (Nehru, 1989). This portrayal of the Green Revolution as a complete success in mainstream national and global food security discourses would allow policies in the decades that ensued to recognize the use of technology as the sole means of achieving food requirements, no matter what the cost. This macro level perspective that would be reinforced over the next half-century not only reduced allocations of resources dedicated towards alternative practices, but also led to their marginalization and delegitimization in the eyes of the newer generation of farmers.

Chapter IV: The consolidation of technocracy with the penetration of market relations

Even as the Green Revolution was for the most part perceived as an unqualified success in top-down international and national societal discourse, which as mentioned would greatly influence the preeminence of technological innovation and productivist logic in structuring global agricultural policies, disaggregating the phenomenon's claim in achieving record yields and reducing hunger would illuminate critical perspectives that complicate its supposed achievements. For example, in the very same year of the initial success in many parts of "East India, one could not move about in the countryside without hearing people at or near the base of the rural hierarchy expressing their frustration concerning their status and economic vulnerability" (Januzzi, 1994, 140). There were instances "involving peasant cultivators in land-grab activities [and] most militant expressions were localized around the Naxalbari in West Bengal" (Januzzi, 1994, 141), which subsequently turned into a Communist guerilla movement that has remained active till today. Even Prime Minister Indira Gandhi whose economic philosophy was similar to her father, Prime Minister Nehru "in August 1969, suggested that small farmers had not been sharing meaningfully in whatever progress had been generated [and] urged [provincial level] chief ministers that a fair share of fertilizer, seeds and irrigation be guaranteed to cultivators tilling smallholdings [as well as to] confer security of tenure [and] quick[ly] implement [land] ceiling" (Januzzi, 1994, 143). These negative impacts were conveniently ignored given that it was expedient to believe that an even greater uptake of technology resulting in even greater productivity and production levels would bring about increased incomes for all and that social unrest would eventually eliminated.

However, given that Green Revolution technologies are heavily premised on high levels of upfront capital, only rich farmers were initially able to afford to purchase these inputs. Unsurprisingly, "poorer, peasant farmers were priced out of the market, the concentration of landholding increased," a situation that would in part catalyze rural-urban migration and create the country's massive informal sector. Furthermore, what would exacerbate this trend was that "large landholders discover[ed] that even though high-yielding varieties required more expensive inputs, their higher profit margins enabled them to invest in labor-saving machinery and chemicals" (Latham, 2011, 117). These two trends importantly highlight the self-fulfilling rather than inevitable character of the Rostowian idea of moving of populations out of the agricultural sector.

With the truth regime of the necessity of technological use increasingly solidified amongst many agricultural stakeholders, small farmers would have little choice but to remain competitive. This would be a daunting task given that "the new agricultural technology is essentially land-saving and to some extent labor-saving. There is a substitution of capital for land and labor" (Hanumantha, 1994, 12). This resulted over time in the weakening or even disappearance of the traditionally observed inverse relationship between farm size and output per hectare. In effect, the increase in "the yield per hectare of certain individual crops through the intensification of inputs [and] labor displacing mechanization like harvest combines [would have] an adverse effect on the employment and income of hired labor whose number ha[d] been increasing and getting increasingly casualised" (Hanumantha, 1994, 45-46). Rather than address these increasing disparities between large and small farmers by redistribution (in terms of land or otherwise), de-emphasizing market production, or critically evaluating the

appropriateness of the technologically-centric paradigm, the idea of competition would gain axiomatic truth value and would be increasingly strengthened. This was not only justified with well-known contemporary tropes of economic efficiency and the purported benefits of low food prices for society at large, but also consisted of what ultimately would become naturalized discourses of self-responsibilization and individualization. Instead of raising questions regarding an alternative structural environment, more and more farmers internalized its seeming *natural* character and looked to adjusting their own behavior and decision-making capacity in order to succeed in the new *reality* of a competitive framework.

Hence, for small farmers to afford input technologies to attempt to keep up with a drastically altered production environment, it would be necessary for them to take on credit, indicating the beginning of vicious cycles of debt that many still are entrenched in today. Initially, government policies played a central role in catalyzing the introduction of credit structures into rural life. The decade of the 1970s would constitute the start of massive expansion of credit availability firstly through formal banking and subsequently through informal mechanisms such as microfinance institutions, cooperative credit and self-help groups with deregulation of the financial sector. It is important to emphasize credit's role around the time of India's independence was minimal given that in 1955, the nationalization of "the new State Bank of India (SBI) [only led to the] open[ing of] 400 branches in semi-urban areas [to] start agricultural lending, even if at a loss. Even so, right up to 1971, the share of banks in rural credit was no more than 2.4 percent and most of these loans were given to plantations" (Shah et al, 2007, 1353). It was in 1969 when "fourteen of India's largest scheduled commercial banks were nationalized. [with] the

preamble [of the relevant legislation, the] Banking Companies (Acquisition and Transfer of Undertakings) Act, 1969 [stating that its goal encompassed] 'a larger social purpose and the need to 'subserve national priorities and objectives such as rapid growth of agriculture, small *industries and exports*, raising of *employment* levels, encouragement of new *entrepreneurs* and development of *backward* areas'" (emphasis mine). This framing already presupposes that societal betterment and progress necessarily required a growing wage economy and which would be catalyzed by exogenous technical applications, financed by debt contracts. In addition, it would mark an implicit claim that technological use would inevitably displace agricultural labor and that new economic sectors would have to be established to absorb these populations.

Given the constant reinforcement of this dominant logic of technical change lubricated with cheap and widely available liquidity, it is unsurprising that "the number of rural branches of banks increased from a mere 1443 in 1969 to around 35,000 in the early 1990s [and] the share of rural branches went up from 18 to 58 per cent during the same period" (Shah et al, 2007, 1354). Initially, with both the availability of high levels of relatively cheap credit as well as provision of public resources for agricultural investment, a measure of legitimacy thrived, both on the level of a somewhat stable overall social contract between government and farmers as well as in terms of the perception of the potential positive outcomes of the focus on quantity of production in some parts of the country. Hence into the 1970s, a higher proportion of rural communities were swept by Green Revolution technologies and its truth regimes of the necessity of market-based production that came with an illusion that access to credit at low interest rates could be sustained in the long-term. Over the years, as the desirability of wealth

accumulation began to intensify amongst a wide swath of the rural poor, it would first require a significant reorientation of how the socio-economic context would come to be perceived, namely by commodifying individual and community possessions (which could act as collateral) and altering production practices towards the repayment of debts, with the hope that stable market prices would allow for increasing incomes to be acquired.

Subsequent withdrawal of state involvement in agriculture

These ingrained truth regimes of capital and technology-intensive agricultural production and the entrepreneurial individual farmer would be sustained despite the subsequent rollback starting in the mid-1980s of direct state involvement in the agricultural sector and the accompanying deregulation of financial institutions that would alter the institutional and policy framework to one that remains hegemonic today. Similar to the externally derived *neutral* ideas surrounding the assumed necessity of technological innovation to *improve* agriculture, the emergence of fiscal discipline and state withdrawal from economic production can be traced to the reemergence of the discourse that desires to remove so-called *distortions* from the smooth functioning of the *free* market.

Again, rather than being a timeless and *scientific* set of ideas that transpired necessarily and teleologically, it only became prominent after a series of political contestations internationally displaced the New Left wherein counterculture, civil rights, anti-war, student and environmental movements in the United States and Europe bore affinities with Marxist-inspired labor and postcolonial movements in newly-independent nation-states had attempted imagine a radically new world economic order. Globally, this would mark the beginning of the neoliberal era with the impotency of Non-Aligned

Movement and flailing promises of the 1955 Bandung Conference to establish economic policies in newly-independent countries that did not necessarily emphasize integration with the wider (capitalist) global economy structured around American and European interests. Unsurprisingly, key actors who propagated these ideas were the World Bank and the International Monetary Fund (IMF), institutions based in Washington DC. Many of these countries became mired in debt, due in part to poorly executed capital-intensive import-substitution policies, the reluctance of Global North governments to disburse untied foreign aid and wider external forces beyond the control of much of the Global South. The latter include the relinquishment of the Gold standard--replaced by US dollar as the de facto reserve currency, declining terms of trade, the Volcker shock of the mid-1970s leading to the rise in global interest rates, the creation of the G7 that allowed the world's most power countries to consolidate its hegemony especially in terms of its efforts at delegitimizing the New International Economic Order (NIEO)[1] proposed at the UN General Assembly and the UN Conference on Trade and Development (UNCTAD) and the failure in the enactment of proposed arrangements to use oil revenues from OPEC states for productive investments in Global South countries and exacerbated by the oil crisis of the 1970s. (Prashad, 2012). As a result, they were *forced* to take on loans from these two institutions that came with a number of conditionalities that demanded economic restructuring towards a more market-friendly orientation. These pressures were present in India as early as the lead-up to the Green Revolution, but were resisted by high-level government officials who initially saw them as a form of neocolonial meddling.

[1] setting up of commodity associations, allowing national regulation of multinational corporations, ensuring equitable terms of trade and unconditional technology transfers and technical assistance from Global North to Global South

A report, published by the World Bank that chronicles the relationship between the institution and the Indian government from 1947-1997 by one of its staff members. It documented how initially in the early post-independence years, "Indian decision-makers saw the Bank as a source of capital rather than of advice. The ideological perspective attributed to the Bank made it unlikely that the Bank would be able to offer relevant advice" (Kraske, 1997, 2). However, this perception shifted over the years as a dialectical back and forth proceeded. In the context of high expenditures of state investments in the industrial sector, "the Bank mounted a large economic mission in the fall of 1964 which was headed by Bernard Bell, a seasoned professional and highly regarded economic consultant based upon the *objective* idea that rising fiscal pressures would weaken the country's growth potential. The resulting report was described by Kraske as "undoctrinaire and matter-of-fact, [criticizing how] heavy reliance on import substitution and the extended role of the public sector [would lead to] the neglect of exports and pervasive inefficiency." Similar to the Green Revolution seminal moment in which technocratic abstractions of scientific rationality gained significant legitimacy to justify external interventions to *improve backward* agriculture, the report's emphasis on understanding perceived to be *real* "failures, deficiencies, and obstacles to more rapid progress in order that they might be overcome, that the achievements might be greater, and that progress might be accelerated" (Kraske, 1997, 10) highlights how World Bank efforts were characterized as a dispassionate exercise in assessing India's economy based on a universal set of abstract economic theories.

With this non-ideological framing coupled with the context of "India's foreign exchange reserves plummet[ing] to US$500 million from a high of US$1.87 billion a

decade earlier" (Kirk, 2011, 16), a US$900 million loan was accepted by the Indian government, on the condition of a devaluation of its currency by 36.5%. Significantly, it marked the World Bank's "first significant attempt to use the leverage of its lending to modify macroeconomic policies in a major member country" (Kraske, 1997, 12) beyond infrastructural financial assistance, marking a key test of the purported scienticity and non-ideological character on which it was justified. The promises of expanded economic growth on the basis of this early version of neoliberal doctrine did not materialize in the years thereafter, "sour[ing] the relationship with its most important borrower" (Kraske, 1997, 13). In response, Prime Minister "Gandhi abandon[ed] the reform program negotiated with the Bank--*apart from agricultural sector components*--and instead launch[ed] an aggressive expansion of the public sector including new licensing requirements and other restrictions for industry and nationalizing the country's major banks" (Kirk, 2011, 20). The World Bank fended off criticism of the ineffectiveness of the policy's promises by casting blame back on the Indian state by stating that "extent of the reforms introduced [was not] significant enough to have brought about a major transformation of the economy" (Kraske, 1997, 12) dictated that the complexity of actually existing society conform to its presupposed *universal* context-less principles. Similar to how a healthy level of ambivalence and skepticism with regards to the suitability of agricultural technology finally gave way to a more-or-less acceptance of its purported superior quality, initial resentment against World Bank/IMF prescriptions would eventually disappear as structural reforms gained domestic legitimacy, especially at the central government level.

Hence, the failure of this first attempt at enforcing neoliberal orthodoxy would only be temporary especially in the context of increasing capital needs for agricultural technologies (and industry) as just alluded to and the resulting fiscal and current account pressures that would be magnified into the late 1980s. Interestingly, the World Bank under the presidency of "[Robert] McNamara [beginning] in 1968 downplayed reform advocacy in favor of meeting expanded lending targets. The Bank became much more focused on targeted poverty reduction, [with this] norm le[ading] to a 1970s emphasis on new kinds of projects [doubtless in a technocratic manner], focusing on agriculture and rural development, family planning and the social sectors of primary education and health" (Kirk, 2011, 22-23). As a result, this alignment with modernization theory catalyzed "lending for major irrigation schemes, for agricultural credit supporting groundwater irrigation and agricultural mechanization, for seed propagation, grain storage, agricultural markets and rural electrification, [which in totality] represented an expanding share of the Bank's activities in India, absorbing close to 40% of total commitments by the mid-1970s" (Kirk, 2011, 13). Thus, it gave rise to a dynamic of mutual dependence, similar to intractable creditor-debtor relationships witnessed at the level of the individual farmer with the World Bank needing to remain relevant and hence "occasionally voiced internal concerns about India's economic policies [did not prevent] the Bank [from] expanding its portfolio" (Kirk, 2011, 27). Domestically, the continued push led to a "growth of spending accelerat[ing] from 13% annually in the 1970s to almost 19% in the 1980s. The resulting deficits were funded by domestic and foreign borrowing, raising the level of debt servic[ing] in the budget to alarming levels and

quadrupling India's foreign debt from $20 billion in 1980 to $80 billion in 1991" (Kraske, 2011, 18).

Eventually, as these debts continued to mount, the ideological tides at the World Bank and IMF shifted into the 1980s towards monetarism that emphasized financial discipline. "Jácques de Larosière, a hard-nosed former undersecretary for monetary affairs at the Directeur du Tresor and head of the Banque de France [took over at the IMF]. De Larosière had no time for equity and the NIEO. He was given over to the monetarist view that stability was the main order [while] Tom Clausen, straight from his perch at BankAmerica" (Prashad, 2012, 29-30) became the president of the World Bank in 1981. At the same time, a similar trend was happening internally at the higher echelons of the Indian central government. It is noted that "especially during [Prime Minister] Gandhi's second, post-Emergency tenure in 1980-4, [she] began to listen more to the advice of reform advocates in her government, decreas[ing] public expenditure and liberalized import restrictions, albeit modestly" (Kirk, 2011, 24). Thus, it was during this time when the political and bureaucratic elite began to *willingly* accept the validity of the supposed universal truth claims of economic abstraction coming from the World Bank/IMF. A contemporary manifestation of this is "the 'revolving door' linking senior economic posts in New Delhi to the Bretton Woods institutions in Washington as typified in the careers of officials such as Montek Singh Ahluwalia and Shankar Acharya" (Kirk, 2011, xix) and the fact that "the Bank's offices in New Delhi employ almost 200 professional staff [with] over 90% of them are Indian, including senior economist positions and other top jobs--suggesting a significant "indigenization" of the institution's country operations" (Kirk, 2011, xx).

While it is might be justified to argue that massive growing fiscal debts cannot be sustained ad infinitum (which in itself showing the folly of basing an economic paradigm on capital-intensive technology, subsequently necessitating some degree of subsequent pull-back), the considerable extent of structural reforms India took was a result of central government officials internalizing the wider discourse of "economic and financial realities [and] lack of financial discipline." Coupled with "analytical work of the Bank contribut[ing] to this debate and helped clarify the issues" (Kraske, 1997, 19), the emergence of the truth regime of cuts in government spending, the idea of the infallibility of the terms of debt contracts and the deregulation of the private sector would come to dominate the mindsets of those who are in positions of economic policymaking starting the late 1980s until today. It was partially on this basis that justified the key moment in India's liberalization policies starting in 1990-1, when the country

> "experienced a severe balance of payments crisis….[F]undamentally, analysts have argued that the crisis stemmed from structural imbalances and unsustainable policies, including large current account deficits throughout the 1980s and a rapid accumulation of foreign debt, accompanied by a deterioration in the quality of debt as current government expenditures rose and public investment fell. India's foreign exchange reserves fell to alarmingly low levels and the government's credit rating was downgraded. In July 1991, India sought stabilization assistance worth US$2.3 billion from the IMF, followed by its first [structural adjustment loan] from the World Bank in the amount of US$500 million" (Kirk, 2011, 27-28).

Specifically in agricultural sector, even as the loss in traditional knowledge and weakening of the moral economy was already in full swing, the commitment to capital-intensive technological innovations continued to be reinforced at this juncture. The only, but significant change was the question of who was going to provide these resources, which also had distributional implications.

Clear evidence of reforms can be seen from how, “from 1985 to 1990—on average a sizeable 11.1 percent of NNP [(net national product)] was allocated annually to rural development expenditure (RDE) and infrastructure. [This figure] was cut sharply to below 6 percent by mid-decade” (Patnaik, 2005, 234). In absolute terms, “public investment in agriculture declined slightly in nominal terms from Rs 4395 crores (1990-91) to Rs 4221 crores (1999-00). A look at total investment as a share of GDP is more revealing-it fell from 1.92% to 1.37%” (Vakulabharanam and Motiram, 2011, 111-112) in an economy that grew in absolute terms or “shr[inking] from 17% in the 1970s to 12% in the 1980s to just 9% in the 1990s as a proportion of total investment in the economy” (Shrivastava and Kothari, 2012, 178). In addition**, “**average tariffs on agricultural imports [were] reduced from 100% in 1990 to 30% in 1997” (Vakulabharanam and Motiram, 2011, 114), exposing small farmers to greater competition.

The deregulation of the banking sector would also contribute to negative consequences small farmers came to face as a result of state rollback, giving rise to an even greater extent of exploitative debt relations as “the expansion of the formal credit sector, even [as credit disbursal during] the period of social banking showed a great imbalance, being concentrated in the hands of the rich and the already developed regions” (Shah et al, 2007, 1356). Given that agricultural technology was becoming used by more small farmers at ever greater intensity, “a neoliberal ethos governing the provision of credit was rapidly established within key institutions such as the RBI and the National Bank for Agriculture and Rural Development (NABARD)” (Taylor, 2011, 486-487) would place farmers in greater precarity.

“The RBI set up a Committee on the Financial System in 1991. Th[is] Narasimham Committee placed its report centrally within the broader process of "liberalisation" of the

Indian economy….It wanted the branch licensing policy to be revoked and interest rates to be deregulated. The share of [branch] offices in total bank branches peaked in 1990 (58 per cent) and steadily declined thereafter to under 45 per cent in 2006….Mergers and swapping of rural branches, rather than expansion, became the norm" (Shah et al, 2007, 1356).

With this decreased presence of public banks, it would come as no surprise that "private banks increased their share in both credit and deposits from around 4 per cent in each in 1990 to around 18-19 per cent in each in 2005" (Shah et al, 2007, 1357).

As a result, the entrance of non-institutional microfinance came to fill in for the credit needs of small farmers. This would mainly take the form of self-help groups (SHGs), which not only consists of collectives saving money and loaning it back out, but would eventually involve their "eligib[ility] for small loan[s] from a commercial bank. Linking SHGs to banks was seen to facilitate their integration into the formal financial system despite a lack of collateral" (Taylor, 2011, 488). What "began as a pilot in 1992 with 500 [such] groups [expanded to] over 22,000,000 SHGs ha[ving] been provided with bank loans by March 2006" (Shah et al, 2007, 1358). Given the profit-maximization nature of commercial bank operations, coupled with relatively small disbursement amounts of these loans, the need for these groups to remain financially viable would require the imposition of high interest rates. It would come as no surprise that "private banks have increased their share in both credit and deposits from around 4 per cent in each in 1990 to around 18-19 per cent in each in 2005" (Shah et al, 2007, 1357).

In addition to how "poor producers [have come to] rely on non-institutional sources where interest rates average 28%" (Harriss-White and Janakarajan, 1997, 1473), the trapping of small farmers in vicious cycles of debt would be sustained on the basis of new forms of bondage, including "future labor service, future harvest or the right to use

already encumbered land. The lender is in a powerful position to undervalue these not easily marketable collaterals [to the extent of the] prefer[ring] default to repayment" (Shah et al, 2007, 1361), thus having an interest in perpetually entrapping small farmers in such relations and allowing them to maximize the extraction of surplus value on the basis of their weak bargaining position. With the decreasing ability of reliance on traditional production methods and the breakdown of the moral economy, there exist few possibilities to maneuver in order to escape these logics. Furthermore, what makes this even unlikelier to occur is how small farmers have internalized the discourse of individualization and the resulting seemingly rational, but atomistic and powerless interaction with upstream and downstream agricultural market structures and its mechanistic dictates.

This dominant technocratic and market discourse on agriculture would result in a number of other vicious cycles including change in production trends, the emergence of the technological treadmill and the manifestation of negative ecological consequences. At a basic level, given that "land, harvests, labor time and natural resources [increasingly] are monetarily evaluated while surrounding sociocultural and ecological considerations remain secondary" (Gerber, 2014, 738), the instrumentalist character of both social and human-nature relationships only become reinforced. At the same time, with the passing of two generations since India's independence, traditional knowledge loss on both the level of production practices and cultural meanings would become more pronounced, exemplified by the "area under high-yielding varieties of foodgrains ha[ving] risen from 2 million hectares in 1966-7 to 61 million hectares in 1989-90, [whilst] the consumption of fertilizer, which had risen from 66 thousand tonnes in 1951-52 to 785 thousand tonnes

in 1965-6, rose to 12.5 million tonnes in 1990" (Hanumantha, 1994, 13). While part of this increase can be attributed to the desire to increase yields, the short-termist production mentality and the declining health of land would result in heightened monocropping, prevalence of diminishing returns due to chemical effectiveness, increased pest resistance as well as reduced availability and use of organic manures.

As a consequence of this relentless exploitation driven by the need to maximize short-term production to stay competitive, production practices became untethered from ecological realities. This is typified by how

> "some 20 million wells currently source water for almost 60% of India's net irrigated area, ma[king] India the biggest user of groundwater globally. The attractiveness of groundwater irrigation lay precisely in its potential to sever agricultural production from the fickleness of the monsoon rains. The possibility of 'water on demand' provided hydrological foundations for a greater intensity of production through year-round cultivation, the diversification of crops and increased technological change across both production and processing" (Taylor, 2013, 694-695).

This paradigm perceives *nature* as merely possessing *useful* resources that could be constantly extracted for cash crop (commodity) production. At a basic ecological level, we can recognize the folly of how scientific management of agricultural production is structured in terms of discrete, linear processes in an effort to maximize output is something that cannot be sustained into the long-term.

With both the market logic increasingly becoming hegemonic, rampant competition would only lead to self-exploitation (a form of indirect extraction of surplus value or subsidy for downstream agricultural stakeholders and better-off consumers in India and beyond) amongst many small farmers as they attempt to escape debt cycles in light of "their exposure to steeply falling global primary prices since mid-decade" (Patnaik, 2005, 238-239). The already dire situation would be exacerbated by "average

real costs per hectare hav[ing] more than doubled since 1973-74 [to 2004 with] the biggest change over the period is the share of costs taken by pesticides; up from 1% to 11%" (Harriss-White et al, 2004, 24). An additional factor that would aggravate the plight of the smallholder would be how "large farmers were far more likely to invest [credit] productively [whilst small farmers] used the money for meeting basic consumption needs or paying existing debts" (Taylor, 2011, 499), highlighting how the worsening economic, social and ecological context is dialectically self-reinforcing.

Even as the necessity of smallholders in acquiescing to taking on debt to remain competitive in order to reproduce basic livelihoods is acknowledged, it is also important to recognize the significance of the positive representation of credit relations in societal discourse in India and around the world. Rather than being a mere catalyst for the possible accumulation of wealth, it also serves an "ideological function as a context-free development tool that can be evaluated on the basis of its own internal logic in abstraction from any place-bound conjuncture of social, political and ecological relations" (Taylor, 2012, 602). This truth regime is implicitly accompanied by moralizing tendencies that associate good behavior with the fulfillment of contractual debt obligations. The transactional characteristics of these arrangements that desires to explicitly extricate societal context, circumstances and power differentials have interesting parallels with the role of debt during pre-capitalist times both in India and beyond, exposing the illusion of purported freedom (to contract) associated with the modern market framework. David Graeber's book *Debt: The First 5000 Years* contrary to dominant economic history narratives, interrogates how debt structures were present in modes of exchange throughout human history. In many of those instances, debt was tied

up explicitly with culturally specific notions of reciprocity, guilt, redemption, morality and sin. Hence, the characterization of modern day debt relations as mutually agreed contracts, devoid of the influence of self-interest, cultural values and social hierarchies itself highlights its ideological character. In actuality, this illusion of neutrality (with many resigning to acquiesce to this naturalized societal phenomenon) hides how "once an economic actor has entered an interest-bearing and guarantee-based credit contract, he/she is compelled to think and to behave in a particular way in order to secure timely repayments [and hence,] forced to produce commodities" (Gerber, 2014, 737-738). This disciplining effect molds a "calculating, rational and maximizing character" in what Michel Foucault would characterize in his 1978-79 lectures compiled in *The Birth of Biopolitics* as entrepreneurial self-production with the remaking of the human as *homo economicus* (Foucault and Senellart, 2008). The individual, especially one who is in debt would come to structure everyday life around the generation of monetary value and constantly make production decisions using "cost/benefit evaluation of all economic transactions and resources, based on the current market prices [resulting in a] relentless drive to concentrate, invest, grow and expand market dependence" (Gerber, 2014, 737-738) in an effort to escape vicious debt cycles. It assumes that humans *naturally* have "values compatible with profit generation, namely the ability to calculate, to work hard, [and] to fit into market institutions" (Gerber, 2014, 744). Any instance of failure is seen as an inevitable consequence of the axiom of market competition, placing blame at the individual level for one's inability in being efficient and productive.

As a result of the combination of the rise in the logic of competition, increased input prices, reduction in state support, negative environmental impacts, stagnant output

prices and decreased access to institutional credit, it would come as no surprise that the smallholder agrarian crisis would emerge into the 2000s till today. Despite an increased cash crop focus, "the share of agriculture in real GDP declined from 31.6% to 26.8% during 1987-99 [which has further decreased since then], while the work force remained at 64 to 65%" (Eashvaraiah, 335, 2001). Even as absolute production increased, the "growth rate for agriculture [was only] 2 percent per annum during the decade from 1995 to 2005, a much lower average than in the 1980s when agricultural growth averaged 3.33 percent and, in fact, it represents the lowest level of growth since independence" (Walker, 2008, 575), highlighting longstanding trends of unremunerative prices and unfair terms of trade. In this sense, the current situation facing small farmers highlights the inability of the abstracted logic inherent in the theoretical edifice of both state-led developmentalism and neoliberal doctrine to bring livelihood stability to a majority of India's population who remain involved in small-scale agriculture. However, it is the partially the failure of the former paradigm in presupposing that capital requirements of technology could be provided in large part by the state that led to the latter's legitimacy as the notion of the desirability of using technology itself is no longer much of a point of controversy at least in general mainstream societal discourse. The power differentials and exploitative dependency relationships that would emerge to a much larger extent with greater market and export-oriented production would be glossed over by the discursive romanticization of the merits of purported mutually beneficial effects resulting from flows of capital, knowledge and goods.

With the central government and the two main political parties (the BJP and the Congress) committed for the most part to the basic tenets of the abstracted logic of

technological innovation and neoliberal economic doctrine and with associated India-wide policy guidance (especially in terms of the emergence of a highly centralized elite bureaucracy) far removed from the complex situation occurring at the subnational level, it comes as no surprise that the dominant framework, naturalized over the last half century or so is able to continue to sustain its legitimacy. This double abstraction would come to pinpoint the causes of adverse impacts either by largely assigning blame on the "inability of the cultivators to have used appropriate knowledge and skills of the new commercial inputs" (Vasavi, 2009, 99). It also ties into the idea of technological innovation as an unending progressivist process with its products always able to be adopted unproblematically in local contexts. This idea itself is a contextless generalization that does not take into account challenging agroecological conditions in dryland agriculture, especially on the Deccan plateau. To some extent, this (un)willing acceptance by small farmers of structural conditions is deeply intertwined with societal discourses of *betterment* assumed to be achievable through the further realization of the technological frontier, individual responsibilization and the need to eliminate persistent distortions in the *naturally* existing *free* market.

As a result, the current discursive, infrastructural and institutional framework continues to be shaped by a reinforcement of the perceived apolitical character of what is the intertwined theoretical edifice of technological prowess and neoliberal economic doctrine. Hence, it is the prevailing framing of issues of agricultural production as technical problems with the use of seemingly neutral *descriptions* and representations that allows any noted negative effects to be explained away. For example, a noted social commentator claims that "increase in [yield] instability cannot be attributed to the new

technology. Rather, the instability arises from the adverse agro-climatic conditions in which the technology is used" (Hanumantha, 1994, 24) whilst "for the state government and the World Bank, the source of problems [of inefficient water use] can be variously located in an ineffective regulatory structure, in market distortions created by the provision of subsidized electricity, and in information deficits that prohibit farmers from making rational decisions" (Taylor, 2013, 692).

This facet of not questioning epistemological assumptions inherent in the dominant framework is most salient in how the causes of farmer suicides are ascertained, an emerging trend of the last decade or so, with "at least 200,000 farmers hav[ing] killed themselves around the country over 13 years up to 2010" (Shrivastava and Kothari, 2012, 179). As opposed to interrogating structural inequities and policy failures that render smallholder livelihood reproduction difficult, focus is placed on "the socio-behavioral practices among farmers, the prevalence of alcoholism, poor health conditions, the occurrence of family disputes over property [in that] suicides reflect a breakdown of family and traditional ties as well as of psychological conditions of predisposition to depression" (Hebbar, 2010, 96). By grasping rural poverty as a *natural* societal phenomenon, "proposed solutions predictably have been reformist and welfare-based in nature and [for the most part] clearly shift[s] the onus onto the farmers themselves for alcoholism, domestic discord and debt" (Hebbar, 2010, 97). These explanations that only serve to reinforce the idea of individual responsibilization highlight the double-edged sword inherent in the overwhelmingly positive tropes associated with the myth of the self-made entrepreneurial farmer.

Chapter V: The continued top-down narrow framing of agricultural policies today

Unsurprisingly, with the technocratic paradigm remaining resilient, policy guidance in the last decade coming from not only the World Bank, but also from the Indian central government largely frames the future of agricultural production as one that remains committed to the prevailing approach. For the World Bank, it continues to emphasize the incomplete project of structural reform and access to credit, in that it assumes that only when such policies are fully implemented, will production conditions automatically allow for a wider swath of the farmer population to thrive. The 2004 World Bank Report titled *India: Re-energizing the Agricultural Sector To Sustain Growth and Reduce Poverty* explicitly identifies the following set of recommendations:

> "(a) liberalizing and improving the functioning of commodity markets, (b) reforming commodity price policy, (c) rationalizing input subsidies, (d) increasing productivity-enhancing investments (research and development, extension, rural infrastructure and services) and (e) reforming public sector institutions and adopting participatory approaches" (World Bank, 2004, ix).

At one go, it identifies (and hence criticizes) the problem of state involvement as wasteful, which prevents the power and potential of unhindered markets to bring about rural prosperity through income generation. This unreflexive sentiment remained present four years later in the 2008 World Bank Report, *India: Taking Agriculture to Market* when it discusses not only the incompleteness of the penetration of credit and the ineffective and dysfunctional public extension system, but also supposed win-win possibilities that would come with further deregulation, promotion of competition and withdrawal of the state, assuming that increased individual choice and resulting growth will occur and will benefit all.

> "Removing policy and regulatory barriers so that those who choose to remain in agriculture can enhance their productivity and competitiveness and achieve the highest

returns from their endeavors is critical for maximizing the agricultural sector's contribution to overall economic growth...growth in the rural nonfarm sector (industry and services) will not only offer alternative employment opportunities but will create a strong foundation for consumer demand in rural areas" (World Bank, 2008, xi-xiii)

It is telling that the developmentalist logic of moving populations out of agriculture appears explicitly in this report with its presupposition of those that remain in agriculture should do so on the basis of contributing as much as possible to the creation of monetary value. In addition, this notion serves as another mode of cushioning the critique of the existing production paradigm, in that it makes a normative claim that those who are unable to compete within the market logic should necessarily move out of agriculture as a means to reproduce their livelihoods. This view is further reiterated in the 2014 World Bank Report, *India: Accelerating Agricultural Productivity Growth 2014,* in its hard-hitting approach towards the castigating perennial *deficiencies* in the Indian government policy framework for not liberalizing far enough to its abstracted ideal whilst also criticizing the perceived low productivity of the small farmer.

"For the vast population that still derives a living directly or indirectly from agriculture, achieving "faster, more inclusive, and sustainable growth"—the objectives at the heart of the Twelfth Five Year Plan—depends critically on simultaneous efforts to improve agriculture's performance and develop new sources of employment for the disproportionately large share of the labor force still on the farm….the slow pace of India's structural transformation is reflected in the large gap in productivity between agricultural and nonagricultural workers. The low productivity of a large proportion of the labor force places a heavy tax on overall well-being and shared prosperity…. Consequently, India must pay particular attention to accelerating the pace of labor absorption outside of agriculture, and it must redouble efforts to increase labor productivity within agriculture" (World Bank, 2014, xv-xix).

It is this characterization of the individual small farmer who is unable to be *productive* in terms of both economic value and yield figures that sustains the notion of inefficiency. However, this discourse that reinforces entrepreneurial responsibilization does not consider the contextual production constraints (ecological situation,

differentiated access to capital, etc.), signifying the latest iteration of the trope of the incapable farmer who *must* adopt external technologies to become better producers (Kumar, 2014). It also assumes of the complete commensurability between goods in the agricultural sector and the non-agricultural sector, in that it reduces the worth of qualitatively different products to a fungible monetary value. It will come as no surprise the Indian central government supports the adoption of the latest in technology, emphasizing the need to continue to increase yields and democratizing access to information (i.e. technical knowledge, market conditions, etc.) as enumerated in its *Agricultural Policy: Vision 2020.* It states that

> "the future increase in food production to meet the continuing high demand must come from increase in yield. There is a need to strengthen adaptive research and technology assessment, refinement and transfer capabilities of the country so that the existing wide technology transfer gaps are bridged. For this, an appropriate network of extension service needs to be created to stimulate and encourage both top-down and bottom-up flows of information between farmers, extension workers, and research scientists to promote the generation, adoption, and evaluation of location specific farm technologies. Ample scope exists for increasing genetic yield potential of a large number of vegetables, fruits as well as other food crops and livestock and fisheries products" (IARI, 2006, 4).

Not only does the central government not acknowledge the dominant highly capital and technology-intensive paradigm as a potential source of currently existing problems, it redoubles its commitment to such a productivist framework, assuming that ever increasing technological advances and the expansion of market opportunities will automatically lead to sustained prosperity for small farmers. It would comprise of not only "creating agriculture-based rural agro-processing and agro-industries, improved rural infrastructures, including access to information, and effective markets [and] farm to market roads (IARI, 2006, 10) and "post-harvest handling and agroprocessing and value addition technologies" (IARI, 2006, 8), but also initiatives in using the latest

developments in information science such as "remote sensing and GIS technologies. [The corresponding] mapp[ing] at micro and macro levels [of] natural and other agricultural resource[s would lead to better] land and water use planning as well as agricultural forecasting, market intelligence and e-business, contingency planning and prediction of disease and pest incidences" (IARI, 2006, 14). This latest move to further abstract *reality* through mathematical calculations of even greater complexity continues to assume that production outcomes can be largely be determined with a rational assessment of inputs and its interaction with the materiality of the land on which production takes place.

This fetishization of the latest high-tech tools not only reinforces a technological frontier mentality that frames existing solutions as merely technical in character, easily casting aside the characterization of agricultural systems as a complex entanglement of social, ecological and technical knowledges, systems, infrastructures and ideas that cannot be completely apprehended using scientific concepts. The rigid application of these instrumental skills embedded in external scientific knowledges is assumed to then spontaneously lead to increased well-being through increased incomes with increased market interaction. Rather than acknowledge the relevance of contextual non-scientific factors in influencing production practices, the dominant technocratic paradigm suggests that only through "specific human resource and skill development programmes to train [small farmers] will make them better decision-makers and highly productive" (IARI, 2006, 12).

Unsurprisingly, the World Bank has been a huge proponent of this value-chain and information-centric push since the early 2000s, assuming that small farmers can smoothly be integrated into larger scale agricultural markets. Largely, it continues to

frame currently existing problems as mainly stemming from a highly regulated "agricultural marketing system remain[ing] fragmented and uncoordinated, subject to multiple layers of intermediaries, with markets that have inadequate infrastructure and facilities, and supply chains subject to high wastage and losses" (World Bank, 2008, ix). This *market* is framed as an entity that not only exists *naturally*, but also, the basis of its logic of production is also posited to align unproblematically with the operation of socio-technical-economic systems it is embedded in and depends on. This discourse frames existing (ecological) problems as stemming from the "distort[ion of] farmer incentives [through] foodgrain, fertilizer, power, and irrigation subsidies increasingly eroding the very foundation for agricultural production in many states" (World Bank, 2004, xx).

Hence, the effective subsumption of this language of sustainability under the dominant technocratic discourse allows its straightforward alignment with the already positively connoted and intertwined tropes of productivity and efficiency. Consequently, strategies emanating from ex-situ laboratory research and spatially and temporally-limited field trials such as "modern biotechnology tools, genetic engineering, as well as conventional breeding methods are all expected to play important roles in the generation of higher yielding, pest and stress resistant varieties of rice, wheat, maize and other cereal crops" (IARI, 2006, 10). In this vein, it does not appreciate the potential contradiction between "concentrat[ing] on accelerating growth in total factor productivity [and] conserving natural resources and promoting ecological integrity of agricultural system" (IARI, 2006, 5). With the focus on closing yield gaps, it narrowly frames solutions as derived from increased "productivity, often equated to yields, can be enhanced through intensification (using more inputs per hectare), through technological advances (better

inputs), and/or improved efficiency (using inputs more effectively)" (World Bank, 2014, xxi-xxii).

Many of the policy approaches and iterations that I have illustrated at the central government and international level have permeated to the state level in Karnataka where Bangalore is located. Evidence of this commitment to reform into the new millennium can be seen in the Karnataka Agriculture Policy 2006 as well as the state's Integrated Agribusiness Development Policy 2011. There is a significant emphasis on "keep[ing] at the forefront improving net farm income of the farmer as the prime goal [and hence, the perceived need to emphasize] aspects of crop planning, production, technology, marketing and prices as foremost components (Government of Karnataka, 2006, 15). This productivist paradigm in the latest form is built upon a logic that emphasizes how exogenous technical change grounded in Green Revolution epistemological assumptions can inexorably lead to sustained livelihood reproduction for all farmers. It is also coupled with an air of inevitability in that these latest innovations are seen as evidence of the undeniable progress of history and as a result, it is assumed that it is an "imperative that Karnataka takes advantage of modern practices, technologies and develop strategies to leverage the growing demand in both domestic and international markets" (Government of Karnataka, 2011, 5). A significant component of this strategy would come in the form of its fast-growing biotechnology sector, evidenced by the number of "companies [in the state] increas[ing] from 35 to 92 between 1999-2000 and 2003-04 at an average annual growth rate of 28 per cent" (Government of Karnataka, 2006, 68-69) with most of them located near Bangalore. However, the presupposition that small farmers can easily benefit from the latest policy iterations is difficult to fathom given the further shift away of the

agricultural sector and *value-creation* away from the farm towards increased emphasis on the "development of post-harvest infrastructure, agro-corridor, agri-SEZs, agri parks, common processing centers, auction houses and rural infrastructure development" (Government of Karnataka, 2011, 11). The associated perception of farm harvests as mere raw material for industrial inputs for these processing industries marks the complete industrialization of agriculture beyond the monoculture production on the field that has become ubiquitous over the last half century.

Chapter VI: The impasse facing small farmers in periurban Bangalore

Many of these policy abstractions that optimistically assume that further technical change can meaningfully improve small farmer livelihoods do not resonate with many of those I interacted with in periurban Bangalore during June-July 2014. As alluded to in the introduction, the current situation is one that renders agricultural production increasingly uncertain not only in the long-term (~10 years) but also in the short to medium term (~2-5 years). One of the clearest indicators is how as of 2006, "small and marginal farmers account for 72.9 per cent of the total holdings, [but only] cultivat[e] only 34.4 per cent of the total cultivable area. The number of holdings increased by 8.58 lakhs [or 858,000] due to fragmentation of the land in the last five years. The average size of holding has decreased [further] from 1.95 ha to 1.74 ha" (Government of Karnataka, 2006, 9) "with the number of holdings having land less than 1.0 ha account[ing] for 42 per cent of the total holdings in the state" (Government of Karnataka, 2006, 23), a figure that has most likely increased in the years since then.

Visually, what was most striking was the dryland condition of most of the landscape with row crops that seemed to be monocultures for the most part interspersed with plots that was either lying fallow or barren land unsuitable for agricultural production, with a significant proportion allocated for non-agricultural purposes. I was also present during what was supposed to be the onset of the monsoon season. However, the rains that many farmers tremendously depend on for the success of their harvest came only on a few days of the six weeks I spent doing fieldwork, not to mention the low intensity when it did come. This aspect was one of the most prominent themes that farmers I spoke to broached. They lamented how monsoon rains had in the recent years

become more unreliable in terms of distribution, quantity and timing, with some attributing this to the change in the microclimate, especially with reduced tree cover, in part due to sand/rock quarrying and urban build up. In addition, a recent study, published in the journal *Nature* has partially attributed these changes in weather patterns as effects of global climate change (Singh et al, 2014). Hence, with the deterioration of the most fundamental determinant of ecological conditions, production prospects of all types of crops are rendered more uncertain. In previous years, the higher level of predictability of the rains year after year allowed many to make appropriate production decisions regarding when, what and how to sow. Specifically, many farmers pointed to how water-intensive paddy production has become unviable in the past 2-4 years.

The widespread, but ultimately unsustainable exploitation of groundwater resources through borewell technologies that farmers state were first introduced 20-30 years ago (which purportedly was initially for the sole purpose of sourcing for drinking water) has been employed to offset this increased unpredictability. However, the prime motivating factor of its introduction in the past two decades or so is a productivist logic that attempts to maximize short-term yields. Taken together, these trends represent how agricultural production has more and more become dislodged from ecological realities with many farmers lamenting how groundwater levels in many instances are below 1000 feet from the surface and dropping, exacerbated by how some farmers estimate that only 5% of borewells are currently functioning. This illustrates the vicious cycle logic that is at play in that the predominant response to harsh ecological conditions has not been an attempt to alter production practices to respect environmental limits.

Before Green Revolution technologies were introduced in this part of India in the mid to late 1970s, production logics were very different. A large proportion of the farmers I spoke to were from the older generation and recalled that production for subsistence was the dominant logic. There was a robust intercropping system that included paddy, pulses, groundnut, coconut, betel, *ragi* (local millet), *jowar* (local maize), cowpea, redgram, greengram, horsegram, sesamum and a limited variety of vegetables (greens and tomatoes), many of which had more than one variety used. In addition, traditional cow varieties not only provided milk, but also manure as well as labor-power for tilling the land. Buffaloes, goats, sheep and chickens also complemented the supply of manure as organic fertilizer. Some of this supply was derived from local pastoralists who focused on raising livestock on common grazing land. In exchange for manure, they were provided with a proportion of the farmer's crop harvest in transactions that did not typically involve any money. "Tank silt" accumulated with the use of traditional water collection methods (i.e. harvesting of rainwater) was also widely available to restore soil health. It was also a period before high rates of urban development when lakes dotted the region's landscape, with surface and rainwater channeled and stored in ponds providing sufficient supplies for agricultural production. Interaction with the market was minimal given that only during instances of excess production when food was sold whilst purchased needs were mainly limited to oil, onions, salt and spices. However, this was not the dominant logic of everyday economic life considering that there were also non-monetary practices of mutual assistance in the provision of both labor and food. By the 1990s, this interconnected socio-environmental-economic system would disintegrate to a large extent.

However, it is important to not romanticize this type of production as completely stable and sufficient in meeting the consumption needs of these communities. For example, one older farmer recalled that some extent of drought conditions did affect the region for 2-3 years in the late 1960s (during the height of the original Green Revolution as discussed earlier). Hence, when external technologies began to be introduced in the early 1970s through demonstration plots, there was a certainly a "wow" factor, a change of psyches, similar to the logic of the performance of modernity that came with interventions of the Ford and Rockefeller Foundations. The resulting uptake of chemicals fertilizers and high yielding seeds was gradual but as its adoption increased, traditional practices (reduced number of varieties used in intercropping as well as decreased seed saving and the collection and making of organic manure) became less prevalent. This was abetted by the supplies were initially given for free through *Raitha Samparka Kendras* (RSKs or local government extension offices), which many farmers mentioned did lead to the first spurt in yields into the early 1980s with these inputs continuing to be subsidized today, albeit at lower rates in proportion to price increases. A number of farmers noted a drop in yields, but a technical fix subsequently came in the form of hybrid seeds, which led to another period in increased production. However, many have expressed how yields peaked again starting in 1995, with different dates thereafter for different crops. Today, RSKs still exist and I had the opportunity to visit one of these branches. It was stocked not only with hybrid seeds, fertilizer, pesticide, micro-nutrients, micro-irrigation systems and spraying equipment, but also information pamphlets regarding how *properly* to use these products. The farmers present had mentioned that nearly everyone in their village depended on this institution for inputs to some extent and

are operated by government officials who either had a professional BSc or Master's degree in agricultural science, highlighting how formal scientific approaches are deeply entrenched in governmental institutions up till today.

Another factor that further reinforced reliance on chemical inputs is the introduction of hybrid cows, which resulted in the decreased availability and quality of organic manure (including cow urine). Its origin arguably can be traced to when the World Bank introduced the Operation Flood scheme in the mid-1970s to maximize milk production with the intention of increasing farmers' monetary incomes. All of the villages I visited had witnessed the implementation of this policy and as a result, the absolute numbers of cows have decreased by up to 70%. While milk production did increase, many lamented the drop in quality and nutritional content, not to mention burgeoning costs to raise these new varieties of cows and hence increased incomes were by no means guaranteed. While these cows require less attention with regards to day-to-day maintenance, farmers I spoke to mentioned that they get sick more often and thus require more medical treatment, thus necessitating more monetary capital. The beginning of the enclosure of common grazing land would also lead to an increased reliance on grown *hybrid* fodder if the maximization of milk yields was desired. Hence, this became an additional crop that had to be grown or bought, which required monetary capital for the procurement of either such supplies or the inputs to grow them. Simultaneously, the consequent reduction in animal labor and use of bullock carts in these villages were replaced by capital-intensive tractors that began to appear in the 1980s. With these increased cash requirements, in part driven by rising expectations as a result of the prevailing discourse of *improvement* and in other expenditures such as education,

healthcare and housing, this would induce a continued shift in the mode of production towards a higher proportion of monoculture cash crops. As the years pass, this mentality would take root and become naturalized, resulting in many, especially amongst the younger generation desiring to exit the agricultural sector given its *backward* and labor-intensive characterization.

Thus, the increased penetration of an intertwined technoscientific and capital-intensive production paradigm has led to qualitative shifts on the level of the subjectivities, policy frameworks and institutional structures. Significantly, the effects of the initial shifts acted themselves as further causes that serve to reinforce the seemingly hegemonic straightjacket of the seeming inevitability of ever more specialization inherent in the logic of market-based production, given the need to earn monetary incomes to meet basic household needs and pay off debts. Considerations of ecological compatibility became less of a concern illustrated by the breaking down of traditional symbiotic ecosystem of medicinal plants, trees and birds and weakening associated knowledge transmission processes over time. Some farmers also noted that this production logic that is premised on the maximization of short-term output would also require higher planting densities and shorter crop cycles and hence, increased competition for water and soil nutrients which has resulted in more weeds, pest attacks and reduced capacity for soil recovery and time for fallow, requiring ever higher quantities of chemical application.

The most obvious manifestation of these vicious cycles and treadmill effects can be seen amongst farmers who have allocated most of their land to grow sugarcane or mulberry leaves (to raise silkworms). Sugarcane production was the first cash crop introduced in the region on the basis that it would lead to augmented cash incomes and

secure livelihoods. However, a number of farmers mentioned that a herd mentality became prevalent and coupled with bad weather in the late 1980s, a collapse in the market occurred that has never fully recovered since. Price volatility is a constant feature of cash crop centric production with a farmer saying that prices per kilogram for raw sugarcane have been fluctuating between 150-2000 rupees (in nominal terms) in the last 20 years. At the time I was doing my fieldwork, there were also massive protests organized by the *Karnataka Rajya Raitha Sangha* (KRRS), the state's farmer movement against sugarcane mills that had not paid farmers (for years in some instances) for their crop. This can be said to be a harbinger for what would worsen already existing longstanding structural inequities with the increased focus on value-chain agriculture leaving farmers to also have to grapple with exploitative practices by actors at the chain's downstream (McMichael, 2013). Similar logics also structure mulberry leaf production, which was the primary cash crop in more than half of the farmer households I interacted with and more recently, with horticultural flower production. With regards to the former, there was a general sentiment that given overall long-term steady demand, it is the least bad crop to grow. However, numerous challenges remain including volatile short-term prices (with price varying from 200 to 400 rupees per kilogram in the past year), low bargaining power with traders and uncertain tariff policy (i.e. influx of Chinese silk depressing prices in the 1990s).

As a result of increased specialization and the inability of self-production to substantially meet consumption needs, there has been a general increase in sourcing food from the market as well as an increase in the proportion of income that is spent on such needs. Diets would also change towards a greater variety of vegetables and increased

consumption of rice whilst the intake of traditional subsistence grains and pulses (which are more conducive for production in dryland conditions) have gone down. For those who allocate most of their land for cash crops, up to 90% of food needs are procured from the local market whilst for most other farmers who are able to grow a combination of vegetables, grains and cash crops, this figure is typically at least over 50%. Drastic increases in input prices would exacerbate this predicament of increased input needs to both sustain necessary levels of production to remain competitive as well as to make up for their reduced efficacy over time. Most farmers have noted that chemical fertilizer requirements for the same unit area have increased up to five times over the last three decades. Many also complain of the low quality of subsidized chemicals with some deciding to buy non-subsidized version whilst a number of farmers also directly attribute price increases to the withdrawal of state support. One farmer pointed to how high yielding seeds were publicly developed by the Karnataka State Seeds Corporation up until the 1990s. However, private companies such as Mahyco-Monsanto, Indo-American Hybrid Seeds and Rasi have gradually dominated the seed market and given their profit motive, seed prices have gone up by up six times (in nominal terms) from 1995 till today.

As a livelihood diversification strategy, many of the farmers I spoke to also attempted, especially in the last decade or so, to take advantage of the increased vegetable and fruit demand (new crops such as beans, radish, cabbage, grapes, bananas and cucumbers) with the expansion in both the physical size and (middle-class) population of Bangalore. However, the purported increased demand was no panacea in terms of guaranteeing a pathway out of their current predicament. Many spoke of the fact that production of a range of vegetable varieties depends first and foremost on a stable supply

of water and given that such supplies are highly variable temporally and spatially, it serves as a significant limiting factor. Price volatility would also be a huge factor in terms of making production decisions difficult. One farmer commented how prices for carrots can fluctuate from 5-40 rupees per kilogram within a year while prices for tomato can vary from 10-50 rupees per kilogram within a single month. Hence, while richer farmers may be able to adjust their production decisions more nimbly, longer-term ecological incompatibility of such a mode of production has become another major concern for small farmers who may need to be more attuned to market demand to maximize incomes. There is also discontent with regards to how farm gate prices differ greatly than retail prices, especially with proposals to expand certain crop markets beyond a legislated geographically limited range. This suggests the exploitative character of traders and middlemen. One farmer had mentioned that baby corn is procured from him at 7 rupees per kilogram while being sold at 70-80 rupees per kilogram to the consumer. Contract farming that aims to establish greater stability with agribusinesses providing inputs and locking in forward prices have not been able take root amongst many households. These arrangements also are criticized for dictating what is produced and when it is required, giving little flexibility for farmers to make autonomous production decisions according to what they may think is most suitable (in all its meanings) and necessary for meeting their household needs.

Most significantly, a substantial proportion of farmers I spoke to readily recognized wide-ranging pitfalls of orienting production practices around market demand, with many in hindsight, expressing that they would not have as readily accepted this shift despite better conditions and higher yields when technology began to be

introduced. For example, a number of farmers pointed to how chemical fertilizers damage soil structure and only contribute to plant development and not soil fertility. One farmer even pointed out how given that yields are typically measured in terms of mass per unit area, large yields do not necessarily point to qualitatively better production outcome given the "artificial" boost provided by chemical fertilizers. At a more visceral level, many mentioned the negative human health impacts, terming such chemicals as "poison," bringing about kidney and heart problems amongst household members. As a result, there is a general consensus of a desire to transition into traditional modes of production, but a number of factors prevent them from doing so. A discussion with a group of fifteen farmers who are all members of KRRS tellingly illuminates these obstacles. As members of the state's farmers' movement, they are well aware of how the movement is attempting to promote traditional agroecological practices as much as possible and simultaneously in the vein of Gandhian self-sufficiency, move farmers away from relying on the market to meet livelihood needs. However, almost all of them remain stuck in the dominant mode of production. The most significant hindrance is due to an acknowledgment that such a transition is a risky proposition to undertake. With heavy chemicalization of the soils, it would take at least three years for land rehabilitation and conversion back into agroecological-based production to take place. Many are unable to risk the potential sudden drop in yields if they were to suddenly change their practices given the need to fulfill immediate short-term needs. In addition, themes such as loss in knowledge, especially with regards to the complexities as well as the lack of interest amongst young people who have grown up during a time period when modernization ideals have become ubiquitous were also brought up. One farmer noted how even as the availability of

biomass inputs for fertilizer has decreased, laborers are now paid to collect them as opposed to "fights" that would take place in earlier decades over such supplies. Another common theme was the perennial inability of the government to incentivize production practices that may be more ecologically appropriate. Many had raised the point that if the government decided to reallocate resources away from subsidizing chemical inputs or to guarantee output prices beyond abysmally low Minimum Support Price (MSP), farmers would respond accordingly to reorient production practices.

Therefore, with substantial amounts of capital required for various purposes and the low profitability of the current production environment, it comes as no surprise that there is a reliance for many households on non-agricultural incomes or work as agricultural laborers to meet basic needs, let alone catalyze meaningful improvements to their livelihoods as promised by the developmentalist logic. However, the dominant top-down societal representation of India's increased non-agricultural sector is an overwhelmingly positive one, invisibilizing experiential perspectives derived from everyday struggles. In this sense, the increasing unviability in sustaining agricultural production is due not only to a worsening ecological context and technology fatigue, but also at a fundamental level, how many express lack of returns due to volatile and stagnating prices, hence persuading many not to take the risk of sowing in the first place. One farmer mentioned how it may be more cost-effective to buy basic *ragi* staple needs from the market, rather than growing it himself. Parcels of eucalyptus tree plantations that require little maintenance also dot the landscape and which can be harvested for the manufacturing of wood and paper products, suggesting that better prospects lie in non-food crop production that do not require the risk of expending much upfront capital for

inputs. For others who need to pay off accumulated debts, they have sold off (parts of) their landholdings, engendering long-term uncertainty with regards to how their livelihoods can be reproduced in a stable manner. The trend of reverse leasing was also raised by many wherein small farmers who decide not to work their fields lease out their land to larger farmers who may be able to better contend with the harsh economic environment, thus unwittingly further aggravating the inequalities between farmers of different classes. One significant coping strategy for small farmer households would come with employment in industries in textile, automobile and low end manufacturing factories that began operations from the early 1990s. Today, a vast majority of households have at least one member working in these facilities with some deriving up to over 70% of their incomes from these jobs.

In addition, especially amongst the older generation, I sensed a hesitant attitude towards the seeming naturalness of an income-based livelihood strategy. Many of them lamented the loss in self-sufficiency and pride in being able to grow their own food needs or having to part ways with their land. However, despite this lament, many also feel that they are not able to meaningfully fight against inequitable structures and policies and that agricultural production in the villages around Bangalore would more or less disappear within the next 10 years. This is most salient when the theme of education came about. While many expressed how they desire for their children to remain in agriculture, the onerous structural environment lead to an emphasis on investing in educational opportunities for the younger generation, many of whom cannot be persuaded to remain interested in working the fields anyway, despite increased mechanization. Ironically, this mentality illustrates how the internalization of the *improvement* ideal has become

(in)advertently pervasive, thus it further contributing to the devaluation and decline of agricultural production.

Therefore, it is not too surprising that forms of sociality and communal relations at the village level have drastically altered illustrating, "the erosion of entrenched cosmogonies and the growth of new symbolic forms in rural India [with the growing] absorption of India's plural and diverse rural cultures into the larger political economic regime (Vasavi, 1999, 1) simultaneously as the "separation of the economic dimensions of agriculture from its previous embeddedness in the local cultural and social complex of the society" (Vasavi, 1999, 129) occurs. The themes of responsibilization with intense levels of competition as alluded to earlier have become characteristic of everyday social life. With each household struggling to reproduce their livelihoods, my observations align with previous fieldwork in the 1990s done in Northern Karnataka on how "the axiom of *dharmakarya* became distanced in the face of increasing commercialization of agriculture [as] traditional time-tested methods of storing grains, reliance on kin and affinal networks and temporary migration were also changed" (Vasavi, 1999, 18). Many interactions have increasingly become transactional, wherein norms of reciprocal non-commodified exchange imbued with cultural meaning have weakened. One example of this is how rules governing borewell use are not being followed in many of the villages I did my fieldwork in. Ideally, there should be a separation of 250 meters between borewells. However, with decreased communal arrangements with each household responsible for sourcing for inputs in discrete, individual plots for the most part, one farmer mentioned how there are instances wherein the separation distance is a mere 5 meters. Officially, only around 1000 borewells are authorized to be dug in his specific *taluk*. However in

reality, it is estimated that 10,000 borewells actually exist. Alcoholism has been a widespread problem even as around 3-4 groups of farmers I spoke to pointed to cases of suicides occurring within or around their village in recent years. This illustration of the weakening of the moral economy would result in the rise in importance of social status, illustrated by how, especially amongst larger farmers are beginning to flaunt their wealth.

In effect, my fieldwork highlights how the challenges of agricultural production in periurban Bangalore is arguably a microcosm of the predicament many small farmers all across India face. It also shows that the purported benefits of the latest technocratic policy iterations in terms of value-chain agriculture have not and are unlikely to ever be realized, rendering uncertain the continued reproduction of livelihoods. Despite this precarity, the truth regime of market-based production intertwined with high levels of technological use has become strongly embedded as part of everyday socio-economic life, whilst many contend with the inability to break out of vicious cycles of debt and technological treadmills. The changes in subjectification is important to highlight here in the sense that fundamental logics underlying currently existing production practices have been *accepted* to a large extent as inescapable boundary conditions. As a result, the notion of farmer *agency* and hence blame for currently existing problems require nuanced analysis. Nonetheless, completely absolving culpability of the technologies themselves and the externally-derived assumptions that justify their use is also wrongheaded.

Chapter VII: The further threat coming from land acquisition in the context of the discourse of the global city

Notwithstanding, an additional complicating influence that requires interrogation is the proximity of the areas where I did my fieldwork to one of the fastest growing cities in the world with the burgeoning physical expansion of Bangalore's spatial extent stemming from investments in so-called high value sectors of real estate, biotechnology and information technology. Hence, the ambivalent sentiments of many small farmer households towards the presence of the non-farm "low-end" manufacturing sector would drastically change in a negative way as the emergence of these non-farm urban, service, knowledge and "high-end" manufacturing sectors would encroach onto their agricultural lands, in part to establish special economic zones for these latter sectors to thrive. The overarching underpinnings that define this contemporary economic strategy can be also attributed to the same liberalization policies that affected agriculture in 1991 with the assumption of the need to realize higher rates of economic growth requiring a scale-back of direct state involvement in the economy. Thus, by allowing the private sector to reign more freely, such actors would be incentivized to invest capital in these latter sectors that are perceived to contribute to the creation of a higher proportion of monetary value and economic growth. It further self-reinforces governmental neglect for the agricultural sector, with this logic similar to the Nehruvian emphasis on industrial growth during the first years of India's independence.

In my field experience, this is exemplified by a number of farmers lamenting both the physical diversion of water sources (both lakes and groundwater) towards urban consumption and industrial manufacturing processes as well as the pollution that flows back to their farms that are for the most part go untreated which itself leads to

deteriorating production conditions. However, the contestation over water resources are merely the tip of the iceberg given that the spatial expansion of the city necessitates the acquisition of farmland. The two main legislative provisions that allow state governments to be able to do so are the Special Economic Zone Act of 2005 and the "Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Bill (RFCTLARR). RFCTLARR replace[d] the colonial Land Acquisition Act of 1894 (LAA). [In effect], the state [can] acquire land for private parties, if the latter's use of the land fulfills a public purpose" (Sud, 2014, 43). It is with this discursive assumption that all forms of economic activity will necessarily bring about benefits to a so-called abstracted notion of the *public* represented as a homogenous entity that obscures how "a large number of farmers, agricultural laborers, fisherfolk and allied workers are getting displaced from land and livelihoods, leading to fierce resistance movements in different parts of the country and resultant state atrocities and violence" (Banerjee-Guha, 2008, 51). A whole range of policy provisions in the SEZ Act of 2005 such as "exemption from customs duties, central excise duties, service taxes, central sales taxes, and securities transaction taxes; and a tax holiday for fifteen years, including a 100% income tax exemption for ten of the fifteen years for SEZ developers" (Walker, 2008, 588) attempt to incentivize the creation of these zones in their latest form and absolve corporations from societal responsibility even as private gains accumulate.

Yet, I contend the main driving force behind this shift can be attributed more fundamentally to a specific philosophy becoming ever more authoritative at a discursive level. With the current economic doctrine of the infallibility of unfettered free markets creating *value* to *grow* India's economy, "any activity that can generate a higher-value

land use than agriculture — no matter how unproductive or speculative — now constitutes a 'public purpose' that warrants the forcible expropriation of land from farmers. We can characterize this as a shift from a regime that dispossesses 'land for production' to one that dispossesses 'land for the market'" (Levien, 2013, 396) with "the SEZ Act requir[ing] that only 35% (later raised to 50%) of the land acquired for SEZs be used for 'processing'" (Levien, 2013, 395). Given that much of the associated economic activity taking place in high-value sectors such as information technology, the vast majority of the country's population of small farmers will likely see little benefit. Furthermore, the rest of what is acquired can be used for speculative purposes and hence, "although the SEZs were originally promoted as a means of generating an industrial boom, in many instances they have already degenerated into a real estate racket" (Walker, 2008, 588). As a result, not only is the *value* of land's complex socio-cultural-ecological contexts, knowledges and histories reduced to an abstract monetary quantity and hence able to be traded in a market, this ontological simplification subsequently gains an apolitical, objective and technical veneer (i.e. land *is* capital) hence giving the justification for corporate control in the name of generalizable trope of *economic growth* without regard for its distributional implications. The Marxist distinction between use value and exchange value is especially salient here wherein surplus accumulation of a small number of private actors with "the privatization of public or commonable land into exclusively owned plots [taking precedence over] long-standing use rights to that land" (Ghertner, 2014, 1563). It has been estimated that from independence through to 2007, "70 million rural households hav[e] been dispossessed [while around this time of two years after the passage of the SEZ Act of 2005] 366 SEZ proposals and approximately

another 180 on an 'in-principle' basis" (Walker, 2008, 587) had been approved with 29 of these being in Karnataka.

More broadly, what is happening in India is characteristic of a broader contemporary global phenomenon known as "land grabbing," which could be described as "accumulation by dispossession" (Harvey, 2003), wherein the already minuscule means of production of a large number of small farmers who are already struggling to subsist are *forcibly* taken away from them to establish plantations, industrial zones and speculative entities on the basis of catalyzing the never-ending push to integrate more and more local communities into the global economy. This push to commodify rural life is not merely the latest effort in subsuming the mode of production under a market logic, but crucially, it also physically alienates small farmers from their basic means of production. As a result, what occurs is actually an intentional effort to increase the reliance of households on the market to meet basic needs (food, water and otherwise) is represented as a natural and inevitable progression of how economic structures *must* evolve and *modernize*. This normative proposition is hence further internalized by small farmers as the latest iteration of the market truth regime that *must* not be questioned. With compensation coming in the form of "smaller pieces of developed (commercial and residential) land, farmers [are given] a stake in the real estate appreciation or enhanced market demand. This neoliberal compensation model was in some ways an application to land acquisition of the De Sotoean proposition that the best solution to poverty is to give the poor secure property rights that they can leverage in markets to harness their microentrepreneurial abilities" (Levien, 2012, 953).

Furthermore, it is important to note that it is a misnomer to simply conclude that liberalization brought about the withdrawal of the state from economic activity given that land acquisition is "fundamentally a political process in which states – or other coercion wielding entities – use extra-economic force to help capitalists overcome barriers to accumulation" (Levien, 2012, 940). By bringing another dimension to understanding the role of the state in *enforcing* neoliberal economic doctrine, it shows how this framework further disciplines individuals to conform to what are depicted as value-free economic policies. With the formalization of SEZs legitimized under the rule of law, "the criminalization of subaltern informalities" stigmatizes *unproductive* small farmers as not only individuals who hinder growth, but also labels them as criminals wherein actions at resisting integration into the broader Indian economic project are deemed illegal. Hence, rather than understanding the emergence of Indian industrialization/urbanization in its current form as the result of historical inevitability of an invisible hand guiding the abstracted notion of the *free* market, "the bourgeois city and its edifices of prosperity are produced through the practices [or technologies] of the state" (Roy, 2011, 233).

It has been observed that "the expansion of India's secondary circuit of capital has taken place primarily through the urbanization of periurban, rural, and protected land [such as] in the satellite cities of Gurgaon and NOIDA in the National Capital Region, in the corridor between Mumbai and Pune, in Kolkata's New Town, and in the edge settlements beyond Bangalore's Electronic City" (Ghertner, 2014, 1559). I was based at this so-called Electronic City from which I made my trips to villages within an hour's proximity by vehicle. As a SEZ, this "city" itself is typical of the transformation of the Bangalore metropolitan area and was either formerly farmland or freshwater lakes. It is

currently expanding into surrounding areas, through processes aptly named Phases II-IV. Its everyday lifeworld is qualitatively different than in the villages I did my fieldwork in. Firstly, most of economic activity is mainly derived from the high-value information sector, with the dominance of multinational companies such as Hewlett-Packard, 3M and many of their local counterparts, including national powerhouses such as Wipro and Infosys. In my time walking around this "city," I inferred that many of the employees of these companies were highly educated with professional qualifications given their formal office attire. The dormitory-style accommodation I was staying at was also one of a number of facilities that catered to short-to-medium term employees who are not originally from Bangalore, with some from outside of India, suggesting an influx of talent from elsewhere attracted to these opportunities. There are also a number of high-rise modern apartments catering to those who have permanently settled down, with Concorde Silicon Valley, Concorde Manhattans and Concorde Cuppertino (sic) being examples of names of these housing facilities, suggesting a desire to mimic *Western* lifestyles.

Notwithstanding, both logics are intricately intertwined in characterizing how contemporary Bangalorean and Indian society operates on the basis of replicative template developmentalism coupled with the increasing emphasis placed on the success of high value industry and service sectors. Simultaneously as this external referencing takes place, its discursive perpetuation requires the projection of middle class norm, epitomized by skilled employees working in Electronic City with the assumption that everyone, no matter what socio-economic background should aspire to and are able to realize this ideal. Again, this contributes to the continued penetration of the notion of the entrepreneurial self-produced economic subject into all sectors in that social mobility is

guaranteed for all on the basis of the diligent and industrious individual taking advantages of purported opportunity offered equally to all by *modern* society. Not only are these notions devoid of any assessment of socio-cultural-ecological context in that well-being determined by monetary accumulation may not be desirable or *possible*, it also ignores power relations between different societal stakeholders as illustrated in existing trends of land dispossession and commitment to technoscientific policies.

The twinning of truth regime abstractions of this middle-class ideal as well as the entrepreneurial individual (in both the urban and the rural context) are central in the portrayal in global societal discourse of present-day India as a rising economic superpower defined primarily on the basis of the GDP growth rate indicator. This representation is itself a generalized abstraction that glosses over contextual heterogeneities at lower spatial scales, coupled with selective quantitative socio-economic trends it employs to maintain this image. At its center is the depiction of logic of developmentalism advancing towards its latter stages, given that "the share of services ha[ving] risen from around two-fifths to over one-half of GDP, [with] the largest rise being in trade, hotels, transport and communications followed by finance, real estate and business services" (Patnaik, 2007, 6) between 1990 and 2004. Importantly, it emphasizes the *progress* already made in moving the focus of the country's economy (and hence its global representation) away from backward subsistence agriculture towards actualizing the promises of development epitomized in the making of the global city.

At even a higher abstract level, this notion of Rising India is part of a wider discourse of Rising Asia, wherein "global rebalancing in the last two decades as many countries of the global South—particularly some of the big Asian economies of China,

India and Indonesia have witnessed high economic growth rates. The economic significance of Rising Asia has also led to greater political influence for some of these nations" (Raghuram et al, 2013, 119). Hence, the labeling of India as an *emerging* country for the inflow of capital not only evokes a sentiment of bountiful opportunities catalyzing *growth* for all, with the less explicit assumption that "the masses still expected to benefit by the trickling down of employment and incomes from these successes" (Harriss and Corbridge, 2010, 40). Another significant aspect that informs the realization of Rising India is how the fashioning of Indian cities is modeled upon the norms of already established counterparts. Analogous to the superior quality of knowledge claims and production practices inherent in the logic of agricultural modernization present since the height of decolonization, there was "a kind of psychological vertigo induced in Asian leaders by the distance to be traveled in order to catch up with the development benchmarks and metropolitan ideals established by and in the West" (Ong, 2011, 8). In its latest iteration, the commitment to compare a city's success on the basis of an external reference point would come in the form of what Aihwa Ong terms as "inter-Asia inter-referencing." She goes on to detail how

> "through the favorable mention, allusion, and even endorsement of another city, actors and institutions position their own projects in a language of explicit comparison and ranking, thus vicariously participating in the symbolic values of particular cities. The idiom of inter-referencing pits cities in relation to one another, by invoking desirable icons of "world class" amenities – upscale hotels, shopping malls, entertainment and conventions facilities, symphonies, opera houses, international enclaves, and airports – as symbols of desirable urban attributes….The constant allusion to other cities energizes efforts to assemble ideas, forms, and alliances in order to "catch up" with pace-setting cities that now exist outside the West. As inter-referencing practices drive speculations on a city's future residents and citizens are often caught up as well in a kind of disciplinary inter-city rivalry" (Ong, 2011, 18).

Uncannily, this logic emphasizing comparability resembles much of the impetus that justified the adoption of agricultural technologies that originated elsewhere. Firstly, it posits the existence of an ideal-type urban counterpart that possess what are presupposed to be superior qualities assessed upon universalizable, fungible criteria that devalues pre-existing socio-spatial lifeworlds, practices and material structures based upon local cultural context. Secondly, attempted homogenization of place-making with "inter-referentiality shap[ing] an intense inter-city consciousness of contrast, comparison, and rivalry" (Ong, 2011, 23) highlight how these flows of ideas and standards influence the subjectivities of individuals (ranging from the periurban small farmer to the parliamentarians in the state legislative assembly) to accept what are perceived to be neutral norms that must be adhered to during this age of the *reality* of unstoppable economic globalization. The subsequent manifestation in policy frameworks and material infrastructures only serve to reinforce and naturalize their seeming inevitability, aligning well with how the logics of how agricultural technologies and their epistemological assumptions over the last half century have come to pervade current modes of production.

Chapter VIII: The positioning of Bangalore as a global city and its relation to current trajectory of Indian developmentalism

The recent rapid growth of Bangalore is both symbolic of and itself a prime contributor towards the push in emphasizing the role of urbanization and "high-value" manufacturing and service sectors as essential towards the fulfillment of India's development trajectory in order to achieve global economic superpower status. Its plans are grandiose to say the least given its expansion "from 226 square km to 696 square km recently, with ambitions to expand to 7,000 square km over the next few decades, [with its] hop[es] to becom[ing] one of the world's largest megalopolises. [As alluded to earlier, the state of Karnataka's] newly empowered and internationally debt-financed parastatals oversee the rapid expansion of the city boundaries, the congealing of rural governments into a world-city one, [with] projects of land acquisition, airport and highway construction, housing townships, and new water and sanitation infrastructure" (Goldman, 2011, 557). Relatedly, "the total population of Bangalore urban agglomeration area increased from 2.92 million in 1981 to 4.13 million in 1991 and to 5.69 million in 2001" (Narayana, 2010, 1286), with this figure having increased to over 10.1 million as of 2014. With its significant IT industry (emblematic of the country's current focus on late-stage developmentalism), the city is known as the Silicon Valley of India, with many international and national companies "plopping themselves down in cow pastures, spinach fields and drained irrigation tanks (small lakes) on the southern and eastern outskirts of the city" (Goldman, 2011, 559). Again, these qualitative changes should not be seen as an inevitable result of teleological progress but are actually brought about through intentional policies given that

"Karnataka was the first state in India to announce a separate policy for the promotion and development of information technology in the state (i.e. Information Technology Policy 1997) whose objectives were to increase domestic and export earnings. Subsequently, the state announced the Millennium IT Policy in 2000. These policies encourage the use of information technology in educational institutions, government, industry and infrastructure sectors, and provide incentives and concessions and special assistance for the attraction of investment and promotion of exports" (Narayana, 2011, 1293-1294).

As a result, "Bangalore's Gross District Income from the ICT sector increased from about Rs 33 billion in 2000/01 to Rs 47 billion in 2002/03 and to Rs 103 billion in 2004/05 (23.66% of GDI or 9.55% of Karnataka's GDP)" (Narayana, 2011, 1296), with "the ICT sector contribut[ing] 10.9% in 1993/94, 70.8% in 1999/2000, and 70.6% in 2004/05" (Narayana, 2011, 1292). Processes of land acquisition are in full swing given its "world-city master plan calls for the incorporation of hundreds of villages and towns on its periphery in order to meet its ambitious growth targets for the next 10 or so years" (Goldman, 2011, 572).

As mentioned, a significant direct role is played by parastatal agencies, with its characterization as a psuedo-public entity deliberately allowing private interests to be able to frame their economic activity as automatically serving the public. These agencies include

"the Bangalore Development Agency (BDA) overseeing the Comprehensive Development Plan; Karnataka Urban Infrastructure Development and Finance Corporation (KUIDFC) set up by the Asian Development Bank and the World Bank to oversee their funds; and Karnataka Industrial Area Development Board (KIADB) which negotiates land acquisitions for mega-city schemes. The world-city project-based parastatals include Bangalore International Airport Area Planning Authority (BIAAPA) and Bangalore–Mysore Infrastructural Corridor Area Planning Authority (BMICAPA). Parastatals are unique in that they depend largely upon external and project financing, and have little or no local oversight, being directly accountable only to the lenders and to the Karnataka chief minister, a party-elected official" (Goldman, 2011, 562).

The support coming from international financial institutions can be seen as part of the efforts starting in the 1990s of how the World Bank shifted the implementation of its agenda from the national to the local level, with Karnataka being one of the focus states. It would be not be a far stretch to characterize "KIADB [as having] become brokers of large-scale public and private land transfers" (Goldman, 2011, 567) despite being justified on the basis of what is seen to be the axiomatic rule of law (i.e. state versions of national SEZ and land acquisition policies). Currently, the Karnataka State Assembly is in the process of deliberating its version of the RFCTLARR, with the 1961 Karnataka Land Reforms Act remaining the central piece of legislation that governs the rules surrounding land transfer. Interestingly, the original version has provisions in sections 63, 79A, 79B and 80, which has language such as instituting a landholding ceiling of 5 hectares, disallowing households with annual incomes more than 2 lakhs (1 lakh=100,000 rupees) from owning land, only allowing cultivators to own land and preventing the transfer of land to non-agriculturalists (Government of Karnataka, 1962). While there are exemptions from these provisions (which also presume "land" refers to agricultural land unless otherwise stated) such as the acquisition of land for productive industrial purposes (in the Nehruvian spirit) and rules that allow land to be forfeited into the government land bank, this could be seen as evidence of a degree of on paper commitments to social welfare back in the years after independence that prevent the excesses of inequitable land distribution. In recent years, the spirit of the law has been neglected as these exemptions are being exploited to maximize land acquisition for private gain. Furthermore, the recent passage of the Karnataka Land Reforms and Certain Other Law (Amendment) Bill in July 2014 now explicitly authorizes a more straightforward process towards granting

governmental clearance for land used for non-agricultural purposes, justified with the classic neoliberal trope of cutting red tape and reducing governmental bureaucracy (Times of India, 2014).

My own experiences as well as my interactions with small farmers highlight how the city's recent growth has sidelined the needs of the majority of the periurban population. My impression of the city upon arriving at Bangalore airport (itself built on land acquired from small farmers) would foreshadow the stark contrast I would witness between the villages I visited and the never-ending construction of commercial buildings and luxurious residential apartments that were not confined to a small core in the city proper. One of the first aspects that stood out were the numerous billboards that advertised these residential apartments by depicting the desirability of a modern urban, market-oriented lifestyle and using fantastical slogans such as "luxury with a conscience, urban highs with a simple price, the millionaire life--the millionaire's home and dare to dream--strive to achieve." These tropes simultaneously reinforce the notion of individual success based upon entrepreneurial values (and that the rich justifiably deserve their riches) whilst playing up late-stage developmentalism, which it itself not so innocuously also contributes to. One particular billboard went to the extent of being unapologetic about the increasing wealth of a tiny elite in posing the question "many of Bangalore's discerning 1% have booked their luxury villas. Isn't it time you did too?" This seemingly neutral statement exemplifies the highly out-of-touch nature of these developments that only benefit a small minority, whilst at the same time spreading the myth of equal opportunity and meritocracy. This sentiment of a lack of direct connection with the

overall expansion of Bangalore, not to mention the upscale real estate developments was an enduring theme throughout my conversations with the small farmers I spoke to.

The clearest indication of the ubiquity of land acquisition is how in my travels outwards from my base at Electronic City to conduct my qualitative interviews, agricultural production on plots of land taking place under already adverse dryland conditions was interspersed with housing plots that either were already under construction or fenced up, with clear signs indicating their intended non-agricultural use. As mentioned earlier, urban requirements win out in the competition for water resources, evidenced by water pipelines pumping water directly from the Kaveri River that lies beyond the rural fringes towards Bangalore bypassing the needs of the periurban population. Another telltale sign of Bangalore's rapid development is the numerous trucks filled with sand and rock driving towards the city in the early evenings from the rural surroundings whilst simultaneously urban day laborers, in buses filled to the brim were being driven out of the city back to their villages, indicating both the significant amount of material resources and cheap labor necessary for the city's build up. The ecological consequences (including directly on soil/land health for agricultural production) in the areas surrounding the city are visibly evident with prevalent sand mining operations requiring the denudation of vegetation and of hills that were once home to a much more complex agroecological system.

There are two specific areas where I had the opportunity to engage with households where land acquisition is currently highly contested. Firstly, there is the area north of the city proper adjacent to new international airport with official plans in motion to further "transform the land surrounding it into high-value gated residential

communities, seven-star hotel complexes, 'medical tourism' hospitals, and business centers" (Goldman, 2011, 569). Secondly, I also spoke to small farmers in the northern section of the "Bangalore–Mysore Industrial Corridor (BMIC) heading south to Mysore from the southern edge of Bangalore" (Goldman, 2011, 568) with estimates back in 2008 that "more than 200,000 rural people w[ould] be displaced" (Goldman, 2011, 566) from this specific massive project. Those I spoke to had significant proportions of land in their villages already acquired or notified for future acquisition. A topic that dominated discussions was while land prices have skyrocketed in recent years, there is still significant variation based on specific location. One farmer who began farming in the 1950s noted how land prices (in nominal terms) back then were around 1000 rupees per acre as compared to 20 lakhs per acre today. In most cases, farmers mentioned how market land prices never rose above 10 lakhs per acre around the turn of the century, but are mostly in the range of 40-60 lakhs per acre today. However, if the plot of desired land was closer to roads or the city center (adjacent to where SEZs have already been established), farmers have quoted market prices of 3-4 crore or in rare instances up to 8 crore per acre for most prime land. Many were animated with regards to how official government compensation not only have constantly been delayed, in some cases for years after the land was initially acquired, but also how the actual sums received were substantially lower than market prices with many payouts below 10 lakhs. This corroborates with earlier research highlighting how KIADB "offers a relative pittance to the non-elite members of rural communities, exercising its right to choose the depressed rural market price and not the upscale world-city market price as its marker" (Goldman, 2011, 566), thereby themselves directly profiting off land sales. This demonstrates how

exploitative relationships between small farmers and elite societal stakeholders, now including the state government itself, know no end. For those who have had their land acquired, many have resorted to odd jobs such as airport maintenance workers and low-skill industrial and manufacturing (food processing, quarrying) and low-end urban services (cleaners, cooks).

For the most part, many of the farmers I spoke to were adamant that in an ideal situation and despite the high prices for land, they would be unwilling to sell or allow the government to acquire their land given their longstanding economic and cultural relationship to it, some of which have lasted for many generations since pre-colonial times. This highlights how some recognize that *value* of their land cannot be reduced to a quantifiable monetized figure. However, some also simultaneously lamented how their communities have been subsumed under the logic of the cash and consumer economy and given the combination of adverse production conditions, lack of youth interest of staying in agriculture as well as difficulties in effectively organizing resistance against land acquisition claims, there might be no choice but to give up their lands in the medium to long-term (~3-5 years from now).

At the same time, some degree of optimistic ambivalence would add a contradictory element in what seems to be a complex amalgam of individual and collective sentiment towards the processes of socio-economic transformation that are taking place. Some of the middle-aged farmers I spoke to feel that some degree of change with the decline of agriculture is inevitable and find hope that their children will be able to thrive in other economic sectors that may be more remunerative. As a result, these farmers dedicate considerable proportion of incomes towards investment in education

with the hope that such qualifications will allow them to escape the current logic of agricultural production. This shows the extent of the potency of idea of *improvement* central to the discourse of developmentalism remains lodged in the psyches of many individuals given its resilience in face of substantial socio-economic dislocation and how benefits have accrued disproportionately to a privileged few. The faith placed by many in the ability of individual perseverance and effort to amount to improved livelihood prospects assumes that dominant economic structures will necessarily allow for meaningful social mobility out of agriculture to occur for small farmer households. A recent study, albeit of the urban poor in Bangalore, corroborates well with this sentiment.

> "Thirty per cent of all respondents aspired that their child should become a medical doctor; another 17 per cent mentioned engineer or software engineer as the aspiration for their child; while 15 per cent mentioned senior government official. 'Own business' was mentioned by another 10 per cent….The vast majority of parents aspire for their children to rise higher than themselves. The spending priorities of slum households reflect these aspirations. Children's – both girls' and boys' – education is the number one spending priority for as many as 513 households (35%)" (Krishna, 2011, 1015).

However, the same survey highlights that

> "no one in these 14 slums is a doctor, lawyer, or software professional. Making matters worse, hardly any slum resident is preparing to take up such occupations; very few even complete an undergraduate degree. If considerable numbers of people were, in fact, becoming doctors or engineers or lawyers, thereafter moving out of slums, then one should expect to find among current slum residents more than a few students preparing for such careers. The fact that not one young man or woman in the surveyed households is a medical college or business school or law school student, and no more than two are studying engineering, provides further indication of a limited set of prospects" (Krishna, 2011, 1018).

Hence, despite the massive disconnect between aspirations of a majority of these communities mired in poverty towards realizing a better economic position and the actually existing reality of the limited access of high-end career positions reflecting limited social mobility and even as conditions structuring agricultural production become

ever more precarious, many retain (misguided) hope in how their situation will meaningfully improve eventually. In this sense, if it is the case that poor households have either (un)willingly acquiesced to or wholeheartedly embraced the purported axiom that neoliberal economic doctrine can provide win-win opportunities for them to better their livelihood prospects, it would seem as if any consequential change to the current dominant socio-economic paradigm is unlikely to happen anytime soon. To make matters worse, there is a vested interest by the growing urban middle class to ensure that status quo is sustained given that it is "availability of low-paid personal services helps make a large Indian city's economy competitive in terms of attracting highly skilled professionals. If Bangalore's richer inhabitants were to suddenly stop receiving the services of slum dwellers, if they had to tend their own lawns, cook their own food, do their own groceries, clean their own homes, type their own notes, arrange their own appointments, and drive their own cars, would so many globally mobile professionals continue to live and work in Bangalore?" (Krishna, 2011, 1025). Again, the theme of the (in)advertent subsidization of the formal non-agricultural sectors by both the urban and rural poor emerges once again, highlighting the existence of a seemingly inevitable mechanism that self-fulfills the logic of developmentalism.

Chapter IX: Non-totalizability of technoscientific and neoliberal economic doctrines

Over the past several chapters, I have demonstrated how processes of agricultural modernization and the broader logic of developmentalism in India that began in earnest during the 1950s post-independence period have been able to remain hegemonic despite significant dislocations and adverse impacts on small farmers who today still make up a more than half of the country's population. I contend that they remain legitimate largely because of how their constructed ideational underpinnings (in the notions of progress, development, technology, science, capital, modernity, entrepreneurship, growth) have been able to gain connotations of neutrality, universality and positivity that successfully (and arguably, in a deliberate manner) obscure both complex socio-cultural context and inequitable power relations between different societal groups.

However, to unproblematically conclude that systemic changes are not possible in realizing alternatives to the current predicament would itself accord too much legitimacy and authority in determining how socio-economic structures may evolve within a pre-given epistemological paradigm. In addition, it also negates the existence of everyday modes of resistance, subjective experiences and lingering alternative livelihood practices that do not align completely with technoscientific and neoliberal frameworks that interpellate individuals to think, behave and operate in specific ways. In this sense, multiple analytical lens can be employed to interrogate and comprehend social phenomenon. By acknowledging that there is not a single objective way to make sense of our world around us, we can recognize that discourse itself *creates realities*, in that language does not merely have descriptive quality, but also an enactive one, which itself illustrates the falsity of the seemingly neutral connotations that the predominantly technocratic logic of developmentalism is associated with. As I have alluded to earlier,

this characteristic is similar to how the emergence of statistical regime at a specific moment in time changed how we come perceive the realm of "the economy" and how its success is assessed. For the most part till now, I have utilized an analytical lens that attempt to show how generalized and abstract market and technological logics, implemented beginning in a top-down manner and compounded by the Foucauldian notion of diffuse micropower have made these "truth regimes" to dominate the modes of agricultural production and broader economic activity. By introducing ground-level perspectives and interpretations that grasp the dominant economic framework as not a historical inevitability but as an assemblage--a contingent coming together of ideas, materials, infrastructures and technologies in a specific spatio-temporal context, the explicit refusal of the complete subsumption of complex historical socio-economic-cultural contexts, meanings and practices under hegemonic logics can occur. In doing so, the notion of non-totalizability emerges as a concept that prevents both the discursive and *real* foreclosure of the potential of meaningful, systemic change. While on one hand we can interpret Foucauldian micropower as being an ubiquitous force in determining how one thinks and behaves and hence how institutional structures are becoming ever technocratic in character. On another hand, we could assert that these processes that attempt at sedimenting status quo will never be complete and rather, will always be open to possible mutations.

This sentiment is expressed in two distinct, but interrelated ways by Karl Polanyi and Anna Tsing. In Polanyi's *The Great Transformation*, he highlights how attempts at the complete commodification of land, labor and money will always result in widespread, adverse impacts and inevitably lead to some degree of active resistance against moves to

fully realize such efforts. In Tsing's *Friction, An Ethnography of Global Connection*, she highlights how in contemporary Indonesia, general concepts derived outside the country regarding economic development and resource extraction as well as the attempt to objectively understand (and hence use) its rainforests by employing non-context specific scientific knowledges will always be in *friction* with local epistemological and ontological paradigms and thus generate hybrid subjectivities and societal structures. One of the ways to destabilize the seemingly constraining structuralist logic of the technoscientific and capitalist version of *reality* is to perceive the construction of urban, periurban and rural space as always mutating and dynamic, neither never fully determined nor static, always subject to a mélange of influences and contestations. For example, understanding the logics behind Bangalore's expansion would require understanding the current operation of

> "national and international restructuring of capital….As capitalist activity is always grounded somewhere, it is found that the diverse material processes in a given spatiality continuously get appropriated by the process of capital accumulation. The construction of globalization thus is found to have largely depended not only on geographical reorganization of economic activities but also historically evolved cultural landscapes. In the process, it has built and rebuilt geography of regions in its own images, creating newer socio-economic landscapes with produced space of infrastructure and institutions for the purpose of facilitating capital accumulation" (Banerjee-Guha, 2008, 52).

Hence, while capital accumulation seems to have emerged as the overriding motivation in how forms of spatial organization currently continually evolve over time and displace older material infrastructures socio-economic activity and practices, there is no inherent need to attribute it with a quality of inherent necessity. Furthermore, by emphasizing that processes of spatial change (i.e. land acquisition) are "contradictory, uneven and crisis ridden" (ibid) rather than occurring as a result of the straightforward implementation of government policies framed with neoliberal economic doctrine, it is at

the very least possible in theory to imagine alternatives that do not conform with this dominant profit motive. This is especially so given that the dictates of capitalist structures and market relations are not pre-existing, eternal ideas that individuals instinctively obey. Instead, their manifestations in social life only result from the attempt at "creating an "utopia" of a free market, [requiring] in practice... a dramatic intensification of a coercive disciplinary form of state intervention to impose market rule" (Banerjee-Guha, 2008, 58). Whilst processes of "destructive ensemble of obsoletism and rebuilding, ephemerality and reinterpretation diffuses across the old spaces, displacing the existing use values and altering the discursive as well as the material geography of such spaces" (Banerjee-Guha, 2008, 54), one should not assume that a deterministic logic that is at work will necessarily eradicate pre-existing social structures and cultural meaning and lead to a character of homogenization of new spatial forms. Rather, it is within these processes of change themselves that can give rise to the realization of open-ended alternative futures, which also disputes the characterization of local cultural and economic practices as static and deficient. The first step is to emphatically acknowledge this possibility at a discursive level instead of giving in to the seemingly seductive modernist technocratic and neoliberal rhetoric.

Thus, the analytical lens of critical urban studies offers a compelling alternative understanding of how ideational influences in dialectic with material infrastructures inform the constitution of the global city. Firstly, it understands current trends of global urbanization as not the smooth extension within a frontier mentality logic of urban forms already achieved in the Global North towards Global South contexts such as India, but as driven by a unstable neoliberal logic that ceaselessly desires to increase capital

accumulation. Therefore, capital requires outlets where it can be invested to earn maximum returns and thus "cities today are embedded within a highly uncertain geo-economic environment, characterized by monetary instability, speculative movements of financial capital, global location strategies by major transnational corporations and intensifying interlocal competition" (Peck et al, 2009, 57). Rather than the romanticized notion of economic growth generating win-win opportunities, the enactment of neoliberal doctrines require a "'natural state' [that is] intensely variegated and persistently unstable topography" (Peck et al, 2009, 52) so that owners of capital can locate their investments where they are reasonably assured that returns can be maximized. While much of this literature attempts to explain trends in the Global North, I argue similar tendencies also occur in places such as Bangalore. Hence, state and local governments have bought in to the supposed necessity of aligning their policies with this logic by "engaging in short-termist forms of interspatial competition, place-marketing and regulatory undercutting in order to attract investment and jobs…[as] cities and their suburban zones of influence have become increasingly important geographical targets and institutional laboratories for a variety of neoliberal policy experiments" (Peck et al, 2009, 58). In this vein, we again should not perceive the Indian 21st century economy as on a teleological progressivist trajectory. Rather, it is informed by "continued turbulence…[that is] reflective of neoliberalism's contradictory creativity—its capacity to repeatedly respond to endemic failures of policy design and implementation through a range of crisis-displacing strategies, fast-policy adjustments, and experimental reforms" (Peck et al, 2009, 64) that allow adverse impacts to matter little.

While it is increasingly the case that "more privatization and deregulation, more subjection of urban development decisions to market logics, a continued delinking of land-use systems from relays of popular-democratic control and public accountability...and a further subordination of place and territory to speculative strategies of profit-making at the expense of use values" (Peck et al, 2013, 1092) is taking place, we should not permit these shifts to fully shut out alternative forms of spatial organization and economic structuring. Hence, even as substantive resistance may seem unlikely given the hegemony of dominant ideational framework down to the level of the individual subject, "profit-oriented strategies of urban restructuring [remain] intensely contested among dominant, subordinate and marginalized social forces….Urban space under capitalism is therefore never permanently fixed; it is continually shaped and reshaped through a relentless clash of opposed social forces oriented, respectively, towards the exchange-value (profit-oriented) and use-value (everyday life) dimensions of urban sociospatial configurations" (Brenner et al, 2012, 206). Similar to how scientific agricultural knowledges cannot fully comprehend land's ecological complexity in an effort to *improve* its production capabilities, it is by recognizing that *rational*, technocratic initiatives such as SEZ policies are unable to fully eradicate pre-existing socio-cultural meanings historically embedded in landscapes that push-back can *possibly* arise. Hence, even as market logic has come to dominate much of Bangalorean (and Indian) rural and urban life with ongoing spatial transformations, we could say that what is going on is analogous to the situation in post-industrial contexts in the Global North.

"Even within industrial landscapes that have been systematically devalued by capital, social attachments to place persist as people struggle to defend the everyday practices and institutional compromises from which capital has sought to extricate itself" (Brenner and Theodore, 2002, 355)

It is this non-deterministic stance that must be underscored, in affirming the ultimately utopian quality of the desire to wholly subjectify individuals to align their behaviors and attitudes according to the dictates of the market. Thus, what actually is an eclecity of external influences and pre-existing practices manifests itself in the production of space "as a historically specific, ongoing, and internally contradictory process of market-driven sociospatial transformation, rather than as a fully actualized policy regime, ideological form, or regulatory framework" (Brenner and Theodore, 2002, 353). The prominent geographer Henri Lefebvre's "expansive idea of space that takes into account what he calls perceived space, conceived space, and lived space" (Purcell, 2003, 577) is a particularly useful tool to bring about multiplicitous understandings of "space." His characterization would privilege meaning creation derived from the subjective lived experiences of individuals and communities and not defined by the impersonality of the materiality of spatial forms that are actualized on the basis of top-down technocratic visions. By doing so, we can see how "conceived spaces of the planner and the bureaucrat as well as those produced by the action of the capitalist market, confront the lived spaces of everyday life as something separate and alien….[thus never completely ruling out] the site of possibility of 'difference' from the homogenizing rationality of abstract space in capitalism" (Bridge, 2013, 10). Just as how ideas and material infrastructures associated with agricultural modernization attempts at unproblematically imposing themselves onto what is presumed to be *empty* space (or where context does not matter and can justifiably be obliterated) though pervasive, have failed, broader urban planning initiatives that come in the form of

"programs of neoliberalization are doomed to coexist in fields of socio-institutional difference, dwelling amongst their ideological others, more often than not

antagonistically. Thus, even as it organizes the leading fronts of market-driven regulatory transformation —consistent with its character as a paradigm of restructuring, rather than as a condition or end-state — neoliberalization is never found alone. There is always more going on than neoliberalism; there are always other active sources and forces of regulatory change; there are always countervailing interests, pressures and visions" (Peck et al, 2013, 1093).

These sentiments are also expressed more specifically in the Asian/Indian context with Ong (2011) explicitly using the assemblage lens to examine the constitution and reconstitution of cities during this specific temporal moment by "view[ing them] not as a fixed locality, but as a particular nexus of situated and transnational ideas, institutions, actors, and practices that may be variously drawn together for solving particular problems." She is critical of

"universal capitalist and postcolonial variants of neo-Marxism [that] rely on singular logics of global change, [that] focus on [the] homogenizing effects of capitalism and colonialism that are presumed to account for uniform conditions in a huge swath of cities throughout the world. [Rather, they] take the vantage point of an Asian region that cannot be reduced to the uniform expectations, logics, and prescriptions of structural Marxism or postcolonial theory….Urban environments are animated by a variety of transnational and local institutions, actors and practices that cannot be neatly mapped out in advance as being on the side of power or on the side of resistance, as if positions could be so unproblematically delineated. Only by liberating the city as a conceptual container of capitalism and subaltern agency can different analytical approaches explore methods for explaining how an urban situation can be at once heterogeneously particular and yet irreducibly global" (Ong, 2011, 9).

It is this hybrid approach that acknowledges the presence of influences that escape simple static categorization and at the same time is "open to the multiplicity of events, interrelationships, and factors that, in ways both chaotic and strategic, expected and unforeseen, are in play in the formation of particular urban environments." Instead of understanding spatial transformations as pre-determined subsumption of local places by the logic of capital inflows and technological adoption, they should be seen "as a problem-space in which a cast of disparate actors – the state, capitalists, NGOs, foreign

experts, and ordinary people" (Ong, 2011, 10), open to contestation, albeit with power differentials given that particular ideas have greater clout.

Nevertheless, a crucial problematization of the descriptor "global" simultaneously emerges in that it disputes the portrayal of this posited external context-less ideal as representing the normative epitome of a set of practices and characteristics that all individuals and communities must strive towards (i.e. global city). Hence, rather than assume the inevitable integration of urban landscape into the global circuits of capital or "see the city as a fixed space or node, [one should] approach the metropolis as a milieu of experimentation where diverse actors and institutions invent and aspire to new ways of being global, and in doing so, recuperate the global not as the endpoint to an already given urban developmental process, but as a terrain of problematization" (Ong, 2011, 23). The discursive destabilization of this signifier in emphasizing the potential of dynamism and unpredictability itself has implications on imagining urban futures. By verbifying the related term "world," "worlding…[we retrieve] the idea of emergence, to claims that global situations are always in formation," always in a process of becoming, always eluding pre-given norms or criteria. Once there is affirmation that there is "no singular or fixed standard of urban globality [but rather] there are many forms of "the global" in play" (Ong, 2011, 12) will there be the weakening of supposed universal applicability of technocratic norms, technoscientific infrastructures and neoliberal economic doctrine.

It is possible to extend this assemblage logic to bring about analytical complexity in apprehending current logics of agrarian change. The first step would be to recognize how the top-down, external imposition of agricultural modernization ideas and infrastructures not only has taken place at a contingent moment in time, but it will also

always clash with and fail to completely eliminate local context given its complexity that has historically accumulated. Hence, rather than accept an inability to break out of the frontier mentality paradigm of seemingly never-ending technical and policy innovation, we could derive an opening in actualizing meaningful alternatives from its continued failures exemplified in actually existing small farmer livelihood precarity and its incomplete implementation over the last half-century or so. Accordingly, this would constitute an admission that it is wrongheaded to assume that *objective* scientific knowledge and its predominantly quantitative representations can fully understand *nature* and its ecological processes. As alluded to earlier, it leads to a misguided anthropocentric viewpoint that perceives land as merely an exploitable resource that is easily manipulable for human ends (of capital accumulation and profit maximization).

A more concrete strategy towards imagining, discussing and ultimately actualizing such "spaces" (both conceptual and physical) is to characterize the subjectivity of small farmers as well as the landscapes they inhabit as having a hybrid and open-ended quality as we see in the non-elite urban subject and urban form through the lens of critical urban studies. By doing so, it can be illustrated that there does not exist singular, linear influences that narrowly and deterministically constrain how individuals and collective communities make decisions on how to reproduce their livelihoods as well as retain, organize and use their land. As a result, we are able to retrieve some degree of agency in the small farmer, disputing their characterization as deficient subjects who passively and mechanistically carry out the dictates of agricultural technologies (i.e. following exact instructions on how much chemicals to apply) or make production decisions solely on the basis of short-term market demand (McMichael, 2008). Akhil

Gupta's *Postcolonial Developments* based on his own field experiences in northern India back in the 1980-90s shows how "while being fundamentally shaped by colonial modernities, many of the everyday practices displayed a distinct lack of fit with the dichotomy of *modern* and *traditional*" (Gupta, 1998, 9). As this highlights how discursive categories themselves give a reductionist view of *reality* as they cannot adequately apprehend interwoven socio-cultural-ecological entanglements that continue to unfold, "they can be looked at neither as shining examples of development nor as exemplars of ecological correctness. As hybridized, syncretic, inappropriate, postcolonial subjects, they enter as a disturbing presence that continuously interrupts the redemptive narratives of the West" (Gupta, 1998, 232).

This can be illustrated by the interactions I had with farmers and specific resolute opinions many harbored despite the rapid transformations that are taking place. Firstly, it was pointed out that despite the harsh economic and ecological context, many, especially amongst the older generation remain able to grow *ragi* to meet the most basic of subsistence needs. They specifically find satisfaction in being able to do so as more than just an example of livelihood provisioning, but also as an enduring cultural practice, whilst simultaneously critiquing the shallowness and the corrupting potential in the allure of money, especially in terms of the breakdown in community relations at the village level. Many also express how an individual's *worth* cannot be determined on the basis of one's wealth. In this vein, one specific group extends this discussion on pride into a social critique of how urbanites who may richer in terms of monetary wealth, but have no knowledge on how to produce their own food and hence are unable to subsist in times of potential crisis. Furthermore, many are adamant in the opposition to their characterization

as backward, inefficient farmers who are perennially dependent on government welfare. Rather, they see themselves as adept producers who despite the harsh ecological and economic environment are able to provide substantial amounts of cheap food that serve as the backbone of the country's economic development story. Secondly, as a result of being able to understand the pitfalls of technological (over)use as mentioned earlier, some farmers also allocate land for specific crops, especially of basic staples to be grown without the use of chemical inputs for their own household consumption. A similar logic is also applied to milk consumption, wherein whenever possible, only milk that is derived from native cow species are consumed by farmer households. Thirdly, even as the number of crop varieties used in intercropping have decreased, this practice has not completely disappeared for some farmers. In recognizing that long-term soil health cannot be sustained on the basis of chemical fertilizers, such practices continue to be used in addition to crop rotation. Almost all the farmers I interacted with emphasized no matter what decision is made to sow a specific crop, they will never plant the same crop on the same plot of land on a consecutive basis.

In addition, I had the opportunity to speak to an activist who works closely with small farmers and KRRS with regards to welfare of individual small farmers as well as getting involved with broader regional, state, national and international agrarian politics. Our discussions focused on how agricultural production and the issues surrounding it is not merely a narrow question confined to the realm of the economy. Rather, given its historical embeddedness in local and regional culture, a community sense of justice through social movements linger on. Examples were given in terms of farmer communities mobilizing themselves to obtain debt forgiveness and cash transfers for

individual farmers who have entered into exploitative debt arrangements and are unable to meet immediate payment obligations. The activist also pointed to the persistence of a sense of rural justice in India more broadly, in addition to how the urban elite have become somewhat nostalgic of Gandhian notions of self-sufficiency. It was also mentioned that KRRS is one of the leading state-level farmer movements in the country (~30,000 participate at state-level meetings) with a specific youth wing to ensure that the next generation recognize the importance of remaining engaged in agricultural production. Not only do they continue to fight against major land acquisition such as ongoing fight regarding the construction of the Kudgi coal power plant in Northern Karnataka, they have historically been part of Indian Coordinating Committee of Farmers' Movements who have for many years attempted to mobilize against the World Trade Organization's Agreement on Agriculture that set out provisions to limit domestic price supports and subsidies as well as reduce import tariffs for agricultural products. Lastly, but significantly, it was only pointed out that KRRS is building capacity amongst farmers around zero budget natural farming (ZBNF) production practices that would eliminate the use of inputs and credit. This system would rely on intercropping of up to 70 different crops as well as fertilizers derived from cow urine and manure, stirred for around 45 days. It has been noted that some youth are excited by the prospects of adopting such practices that will go some way to retrieve traditional knowledges that have laid dormant in the past half century.

Furthermore, given both the physical/material (movements of people, partial dependence of households on non-agricultural incomes, city's outward expansion) and conceptual linkages (logic of developmentalism) between "rural" and "urban" in the

context of the Bangalore metropolitan area, these categories in themselves are not inimical to continuous resignification, undermining their definition as a supposed static set of generalizable axioms. My first-hand experience in attempting to inhabit the Bangalorean phenomenological lifeworld attests to this in many ways. Firstly, the distribution of land-use outside the city center highlights that while there are contiguous parcels of land acquired for industrial or residential estates, it is unlikely that any attempt to rationally plan out the entire metropolitan region is ever likely to succeed. Any such undertaking would require the subsumption of numerous town centers that dot the landscape and which serve as centers of non-agricultural informal economies where much of the poor attempt to eke out a living. Given that it is highly unlikely that jobs in the formal sector can be found for these populations, contestations and resistances against grand visions of the Bangalorean global city will undoubtedly play out for the foreseeable future. Further evidence of this can be seen in the sheer liveliness and spontaneity of everyday life on the periphery of the core of the city characterized by the constant flows of people as they go about their daily lives in attempting to leverage on any opportunity to reproduce their livelihoods. The ubiquitous presence of cows even in highly rationalized formal built-up areas such as the Electronic City cityscape symbolize its hybrid urban-nature quality and shows the persistence of local phenomena despite the influence of seemingly overbearing exogenous top-down forces that gain their legitimacy from abstract technocratic ideals embedded in the logic of developmentalism. Even the negative consequences of rapid urban growth such as traffic bottlenecks and waste strewn in the streets demonstrate the inability of rational policymaking to fully enact its global

city vision given that the desire for a sanitized city conducive for the smooth functioning of so-called high-value economic sectors would seem to be difficult to realize.

At the same time, we must be wary of the possibility that these resilient practices small farmer households are able to employ will be perceived as potential evidence of possession of innate entrepreneurial values. If they are characterized as such, status quo will be reinforced with their subsumption under neoliberal logics emphasizing the ability of the individual self taking place at the expense of attending to structural inequities. In this vein, we also must not romanticize such adaptive capabilities to the extent that we downplay the admittedly precarious livelihood situations that many small farmer households face in "spaces" such as that of periurban Bangalore.

Hence, as we discursively open up the possibilities in imagining and enacting meaningful alternative, it is absolutely necessary to interrogate currently existing trends and initiatives that arguably can either be construed as an extension of dominant modes of agrarian and economic production or as starting points to envision a radically different vision of socio-economic structuring. Partha Chatterjee's notion of *political society* calls attention to empirical phenomena in the vein of the Polanyian double movement of actual push-back against the attempt to integrate the lower class populations into the logic of the national and global capitalist economy. It understands how central and state governments must at least to some extent be responsive to the non-elite majority and hence "what the state is and does, and why, must accordingly also be investigated from the standpoint of the lower classes, and especially in terms of their struggle against the state and the propertied classes. In this dialectic, the fact that the Indian state is engaged in reproducing the political and economic interests of 'those above' does not go unchallenged by 'those

below'" (Das, 2007, 415). In this vein, it needs to be recognized that some level of governmental intervention in activities such as the provisioning basic needs for the poor majority is absolutely necessary for (at least an illusion of) social order and governmental legitimacy to be maintained in addition to quelling potentially disruptive grievances and social discontent resulting from livelihood precarity and socio-spatial dislocation. Arguably, this acts as a significant barrier towards the full realization of neoliberal and technoscientific plans of agricultural production that the elites desire to implement as it is "considered unacceptable that those who are dispossessed of their means of labor [or land] because of the primitive accumulation of capital should have no means of subsistence" (Chatterjee, 2011, 20). Significantly, these ideational, policy and infrastructural logics have become entrenched over time given that

> "the spread of governmental technologies in India in the last three decades, as a result of the deepening reach of the developmental state under conditions of electoral democracy has meant that the state is no longer an external entity to the peasant community. Governmental agencies distributing education, health services, food, roadways, water, electricity, agricultural technology, emergency relief and dozens of other welfare services have penetrated deep into the interior of everyday peasant life. Not only are peasants dependent on state agencies for these services, they have also acquired considerable skill in manipulating and pressurizing these agencies to deliver these benefits" (Chatterjee, 2011, 18).

This sentiment aligns well with a common trope as I have mentioned in how many farmers I interacted with primarily targeted their not only their anger and frustration towards the local and state government. They also continued to have a justifiable sense of expectation of governmental assistance given the continued urban and industrial bias. In this sense, it could be argued that "the forms of capitalist industrial growth now underway in India will make room for the preservation of the peasantry, but under completely altered conditions" (Chatterjee, 2011, 17), thus calling into question the

vision of elite economic policy in catering to and romanticizing the emergence of urban middle and upper classes in being able to be fully actualized. In this sense, it is important to push back against

> "assumptions of an unequivocal cutting of public expenditure that are often invoked to substantiate the claim of state retreat seem especially awkward against the background of the militarization of large swaths of the country in central India…..[given that] the state is also highly visible in a proliferation of social sector interventions over the past 10 years" (Munster and Strumpell 2014, 8).

Hence, the future of the Indian socio-economic structures is open to non-deterministic contestation in that "it is the political response to this challenge that will determine whether the rural poor will remain vulnerable to the manipulative strategies of capital and the state or whether they might use the terrain of governmental activities to assert their own claims to a life of worth and dignity" (Chatterjee, 2011, 31)

More concretely, these political entitlements for the poor include "nation-wide schemes framed in the language of rights: the Right to Food, the Right to Information, the Right to Work….[with arguably the most significant policy coming in the form of] the National Rural Employment Guarantee Act (NREGA) of 2005, introduced by a government bent on liberalization but concerned as well about the threat of dissent from les classes dangereuses" (Corbridge and Shah, 2013, 336-337) (renamed with 'Mahatma Gandhi' prefix and now known as MGNREGA). In this vein, it is also possible to understand how given that "different Indian governments are worried about getting re-elected, [they] therefore pay some attention to the issue of increasing rural distress….in some states, power subsidies have been re-introduced in a big way…[while there existed at the central level] a high-powered debt committee to make recommendations about rural credit structures" (Vakulabharanam and Motiram, 2011, 122). Also, resistance

efforts in recent years all over the country against unbridled land acquisition have also been successful in that affected communities "have used the ideology of the Nehruvian regime of dispossession against its neoliberal successor, with considerable success. They have made land acquisition an electorally salient issue for the first time in India's history, and forced a series of project cancellations, policy retreats and efforts at class compromise" (Levien, 2013, 404), which could then snowball and inspire the continuation of such anti-dispossession movements. In addition, far-reaching and expansive national policies such as the Public Distribution System (the largest subsidized food program in the world) and longstanding battles towards fully complying with international intellectual property standards illustrate how the central government is unable, if not unwilling to fully liberalize and conform to neoliberal economic doctrine. Aihwa Ong in *Neoliberalism as Exception: Mutations in Citizenship and Sovereignty* shows how "neoliberalism" can manifest itself in multiplicitous ways in different contexts in different parts of Asia and hence the notion of an exogenous force subsuming societies, cultures and spaces under its logic in a straightforward, linear manner is both discursively and empirically imprecise. Significantly, the allocation for the important MGNREGA scheme has grown significantly in recent years. "From 2.1% of annual public expenditure, a modest Rs 11,000 crore in 2005-06, it has grown to Rs 39,100 crore in 2009-10 (3.8%) for 40 million workers at Rs 100 a day. But the higher allocation for MGNREGA also means there is less left over for other social programmes given very tight budget constraints and the Fiscal Responsibility and Budget Management Act (FRBM)" (Shrivastava and Kothari, 2012, 118), which illustrates that any policy welfare

concession are still constrained by a technocratic outlook that dominates a narrow paradigm that informs policymaking processes today.

However, it is this vast-reaching FBRM Act that symbolizes how policy concessions that attempt to meet the political demands from below ultimately do not fundamentally alter or question the overarching neoliberal doctrine that structures contemporary society and economy in India. Notwithstanding, it could be argued that these compromises (un)wittingly allow status quo to be sustained, further entrenching and naturalizing market relations and capitalist logic in the Indian economy moving forward. Another aspect to this "delusion" of the prospects of significant change is how the electoral process has been romanticized as the critical site of political contestation. It has been interpreted as

> "a secular form of religion for the masses, [with] the capacity to exercise the vote at intervals provid[ing] agricultural workers and peasants with the illusion that it is they who exercise control over the state and the dominant classes. Not only does this fuel the hope that they gain material benefits from electoral patronage, but it also perpetuates the belief that if not this party/leader then the next one in power will address their problems" (Das, 2007, 419).

These observations raise basic, but ultimately unresolvable questions regarding how one would identify and define meaningful and substantive qualitative shifts from the current paradigm of agricultural production and neoliberal developmentalism, taking into account as I have elaborated how farmers and their households, especially those who were born into the post-Green Revolution generation have internalized and *willingly* accepted, although not completely, the necessity and desirability of technologically-intensive and market-oriented production practices and the trope of *improvement*, institutionalized since the moment of India's independence. In this vein, if we are to concede that small farmers are now able to choose to make *autonomous* production

decisions to reproduce their livelihoods, the criteria for institutionalizing policies that will alleviate the smallholder agrarian crisis would very look different than if a fundamental shift is seen as necessary.

Chapter X: Speculations and Conclusion

Given this impasse, the trajectory and extent of change from the current moment with regards to the character of agricultural production remains unclear and ultimately are non-deterministic. While Chatterjee's idea of the *political society* will ensure that contestations will persist and the basic welfare needs of the (agrarian) poor will be met outside the logic of neoliberal economic doctrine, the immediate delinking from global economy remains unlikely. In addition, as mentioned in the introduction, any step towards decoupling agricultural production from technology and credit would further need to counter Prime Minister Modi's right-wing economic vision. Hence, with plausibly the enabling environment for smallholder production (i.e. further reduction in input subsidies, liberalizing national (regional) and international agricultural markets) worsening in years ahead, fraught political contestations will be fought not only in periurban Bangalore, but throughout the country to prevent corporate consolidation in the agricultural sector wherein an increasing number of small farmers are (un)willingly alienated from their land. The concomitant increases in contract, plantation style-farming arrangements will further reduce the role of the small farmer as passive providers of labor-power.

On another level, instead of assuming that corporate control of the agricultural sector is a positive phenomenon or that millions of small farmers should or will necessarily move out of agriculture into the non-agricultural sector, efforts should be made to "revalue" food production as a meaningful economic activity. At a basic level, it has been noted that many small farmers across the country have "eschewed a demand for land redistribution and instead fought for higher output prices, lower input prices, lower

taxes and loan waivers (Vakulabharanam and Motiram, 2011, 117), which would form a major component of a possible return to a version of left-welfarist policies during the pre-neoliberal era without the urban/industrial bias. This could align with a sentiment Prime Minister Nehru himself made in one of his first speeches to the Indian parliament with the following:

> "we have to remember that major industries do not solve the problem of unemployment among the hundreds of millions of this country. For that we will have to depend more and more on village and cottage industries and develop them on a large scale. We have to remember that we cannot set aside the human factor. We do want more production, but more than that, we want better human beings" (Nehru, 1956, 5).

Virtually all the farmers I spoke to identified that government policies and incentives significantly contribute to production decisions. They point to how current policy frameworks are not farmer-centric, but ultimately benefit the interests of industrial agriculture (i.e. subsidies for chemical inputs eventually accrue to the private companies that produce them). This is illustrated by how many express that are few incentives for organic compost, natural fencing, traditional cows, non-mechanized carts but a significant amount allocated for barbed wire (to delineate private farm plots), cement, tractors and hybrid cows. Therefore, to reduce dependency arrangements and vicious cycles that reinforce them, many desire the government to promote initiatives such as increasing livestock numbers and the provision of grazing land to allow for nutrient virtuous cycles to re-emerge. It is this kind of concerted rural investment that give farmers the explicit opportunity to be able to transition away from chemicalized agriculture. As a result, agricultural production would become a more viable economic activity, thus reducing the reliance on the informal non-agricultural sector for livelihood

reproduction. Village life would be more "alive" and hence, there would be potential for moral economies and community cultural practices to be revitalized once again.

In this regard, there is certainly potential for farmers' organizations/movements from the village to the state (i.e. KRRS) and finally to the national level are able to strengthen and subsequently effectively engage the political process using a myriad of strategies and tactics to leverage these recurrent concerns. One example would be government revenues derived from taxing urban/industrial development be allocated for agricultural programs. At the same time, a deep-rooted commitment to intensive technological use must be disposed of for a number of ecological, economic and socio-cultural reasons. While this does not necessarily entail complete disengagement with technological input and the wider market economy (in terms of procuring inputs, selling outputs and purchasing livelihood necessities), it would entail an appreciation for the complexity and uncertainty involved in the interaction of different production factors that cannot be essentialized by means of scientific and quantitative abstraction. Consequently, it would simultaneously require an embrace of contextually defined ecological limits. Hence, a disavowal for production decisions by all agricultural stakeholders (including consumers) geared around short-term market demand is necessary, with the central element motivating production for farmers oriented around monetary accumulation and the profit motive also weakening or ceasing. In this sense, the re-legitimization and rediffusion of rapidly disappearing traditional agroecological knowledges through government and non-governmental efforts need to occur, which could be hybridized with contextualized and place-based participatory scientific agricultural research. This paradigm would also need to explicitly address concerns over benefit-sharing and

intellectual property rights resulting from already existing power differentials and norms entrenched in current institutional frameworks.

However, if one were to accept the normative and political claim that a fundamental move away from the dominant production logic is beneficial, I contend that a further step would be necessary to actualize consequential alternatives that latch onto the currently existing pockets of ambivalent sentiment amongst village communities and households to engender ontological transformations on how socio-cultural and economic *realities* are conceived and in doing so, modify the foundational motivations behind agricultural production. Firstly, it would completely disavow the frontier mentality that perceives the telos of current human activity as working towards the full realization of a *natural* market and technological *reality* with *nature* instrumentalized and manipulated as a resource for human ends. This explicit non-capitalist orientation would rather envisage ontological worldviews that perceive *reality* as co-produced and co-constituted by human and non-humans in entangled assemblage socio-natures that will always escape static, scientific and universalizable abstraction, quantification and categorization. In this sense, this paradigm would break free from understanding agricultural goods as mere commodities, a logic that romanticizes purported innate human innovation that aims to maximize production of these "objects" for accruing exchange-value. Instead, it recognizes that knowledges governing our lifeworlds cannot cleanly separate out subjective cultural meanings that reduce our existences to monetizable values, thus itself suggesting the incompleteness of neoliberal logics in fully realizing its aim to colonize our subjectivities.

In this sense, engendering these ontological shifts would be an explicitly political act to emphasize the incommensurability of different socio-cultural and economic practices that cannot be essentialized on the basis of *objective* statistical indicators (i.e. GDP, productivity) that implicitly reinforce tropes of *undevelopment* and *development*. It is a deliberate standpoint that refuses comparability between different individuals, villages, communities, regions and countries on the basis of commitment to agricultural modernization. Whether these shifts are possible is a difficult proposition to ascertain given the societal dislocations, dominant economic, institutional and technological framework and change in psyches and subjectivities that have led to widespread acquiescence, ambivalence or willing acceptance with the project of developmentalist modernization over the last half century or so since the country's independence. This tension of acknowledging the dominance of the logic of capital to be able to effectively critique its seemingly ubiquity without giving it excessive explanatory power that would inadvertently reinforce and legitimize its seeming naturalness is best captured by the geographer Vinay Gidwani in the following:

"With its heterogeneous fractions enabled by variegated circuits of human and nonhuman joinings, capital has always led a parasitic existence. It has always contained multiple histories. And each of these histories, even when life is structured-in-dominance to capitalist value, has remained an interlacing of multiple value-productions that are not-capital" (Gidwani, 2011, 229).

In conclusion, in this honors thesis, I have shown how the discourses of agricultural modernization and the logic of developmentalism have gained legitimacy and naturalized themselves as "truth regimes" that are not merely *coercively* imposed by an external, imperial power, but are *willingly* accepted or acquiesced to at the individual level. Coupled with the seemingly irreversible vicious cycles that arise, especially with

the onset of the purported objective quality of neoliberal economic doctrine and commitment to the need to accept unceasing agricultural technological innovation in the post-Green Revolution context, the resulting socio-economic context would seem to constrain the possibility of realizing alternative modes of production and modes of being more broadly. This self-fulfilling logic and inadvertent subsidization by farmers of non-agricultural economic activity (in terms of the provision of cheap labor, cheap food and increasing reliance on non-agricultural incomes) would also further manifest itself in a sentiment of resignedness by some farmers to the threat arising from land acquisition given the increasing non-viability of smallholder production.

However, I have also attempted to highlight how this dominant process that attempts to subsume existing context under an abstracted instrumentalist and scientific epistemology has not been total and will never be complete. An assemblage theory lens brings to the forefront notions of contingency, contestation and dynamism and analyzes actually existing phenomenon as hybridities. Therefore, even as these hegemonic discourses and policies subjectified farmers into structuring their production primarily for the market, bringing them into the wage economy and placing the onus on the individual to be responsible for their own success, pockets of resistance and ambivalence exist with regards to if this trajectory was the only possible option. This shows that attempts at romanticizing ideals of *modernization* and *development* using scientific abstractions and generalized representations are tools to discount and ignore historically accumulated and spatially contextual heterogeneities and power relations.

Hence, with the noted dislocations in specific areas such as periurban Bangalore regarding the increasing non-viability of smallholder agriculture and the failed promises

of the 21st century global city to provide for decent livelihood needs for a majority of its population, the latest iteration of technocratic capitalist policies are ultimately utopic and cannot be implemented unproblematically. There is potential for intensifying resistance with more obvious dislocations resulting from land acquisition as well as failures in the promises of neoliberal discourse/project becoming more tangible in periurban Bangalore and other similar contexts throughout the country. Given this predicament, it is the "site" of the periurban where the visceral material and ideational clash of what are fluid categories of the "rural" and the "urban," the "local" and the "global" and the "backward" and the "advanced" continue to play out. Acknowledging these terms as floating signifiers whose meanings are never static will hence allow imagining possible systemic changes that are non-deterministic and in addition do not accord with the ideal of developmentalism

In this sense, what is now represented in dominant discourses emanating from stakeholders such as the World Bank and those who attend the World Food Prize as the unproblematic progressivist implementation of seemingly *depoliticized* technologies is a false one and in fact, its non-totalizability only goes to show the utopian character of purist external solutions. Hence, these "technical approaches favored by developers – breaking down social and political problems into decontextualized, modular, generalizable schematics – had long been ahistorical" (Gubser, 2012, 1809) are never fully realizable in praxis. In doing so, a critique of technocratic development emerges that interrogates the hubris of scientific rationality in the ability of *experts* to completely understand, manipulate and manage the natural environment and the people living in them. Again, it is by recognizing that while there is nothing inherently *natural* or

necessary regarding the need to *modernize* and *develop* or adhere to economic *laws* in today's free market society, these ideas have become *real* in everyday Indian society and that successful resistances require the emergence of a counternarrative that normatively seeks the realization of alternative modernities that earnestly desires non-conformity from the logic of capital. In this vein, I reiterate my main contribution to the scholarly conversation lies in the extension of the widespread use of the assemblage theory lens in critical urban studies to critical agrarian studies in analyzing not only the Bangalore urban core, but also its material, physical and ideational linkages to agricultural production in its periurban surroundings to understand how knowledge claims that structure dominant agricultural practices have historically and up till today remain contested at village-level spatial scale in the everyday life of small farmers.

Works Cited

Banerjee-Guha, S. (November 22, 2008). Space relations of capital and significance of new economic enclaves: SEZs in India. *Economic and Political Weekly, 43,* 47, 51-59.

Brenner, N., & Theodore, N. (July 01, 2002). Cities and the Geographies of "Actually Existing Neoliberalism". *Antipode, 34,* 3, 349-379.

Bridge, G. (October 12, 2013). On Marxism, Pragmatism and Critical Urban Studies.*International Journal of Urban and Regional Research,* 1.

Chatterjee, P. (2011). Democracy and Economic Transformation in India. in Ruparelia, S. (ed.), *Understanding India's new political economy: A great transformation?*. (17-34) Abingdon, Oxon: Routledge.

Corbridge, S., & Shah, A. (August 01, 2013). Introduction: the underbelly of the Indian boom. *Economy and Society, 42,* 3, 335-347.

Cullather, N. (2010). *The hungry world: America's Cold War battle against poverty in Asia*. Cambridge, Mass: Harvard University Press.

Das, K., & Bhardwaj, M. (February 21, 2015). Modi bets on GM crops for India's second green revolution. Retrieved April 12, 2015, from http://www.reuters.com/article/2015/02/22/us-india-gmo-insight-idUSKBN0LQ00Z20150222

Das, R. J. (July 01, 2007). Looking, but not seeing: The state and/as class in rural India.*Journal of Peasant Studies, 34,* 408-440.

Dutta, R. (February 19, 2015). India offers farmers soil tests to boost yields. Retrieved March 11, 2015, from http://www.reuters.com/article/2015/02/19/india-agriculture-idUSL4N0VT1RB20150219

Eashvaraiah, P. (January 01, 2001). Liberalisation, the state and agriculture in India.*Journal of Contemporary Asia, 31,* 3, 331-345.

Foucault, M. (1995). *Discipline and punish: The birth of the prison*. New York: Vintage Books.

Foucault, M., Senellart, M., & Collège de France. (2008). *The birth of biopolitics: Lectures at the Collège de France, 1978-79*. Basingstoke [England: Palgrave Macmillan

Gerber, J.-F. (January 01, 2014). The role of rural indebtedness in the evolution of capitalism. *Journal of Peasant Studies, 41,* 5, 729-747.

Ghertner, D. A. (January 01, 2014). India's urban revolution: geographies of displacement beyond gentrification. *Environment & Planning A, 46,* 7, 1554-1571.

Gidwani, V. K. (2008). *Capital, interrupted: Agrarian development and the politics of work in India*. Minneapolis: University of Minnesota Press.

Goldman, M. (May 01, 2011). Speculative Urbanism and the Making of the Next World City. *International Journal of Urban and Regional Research, 35,* 3, 555-581.

Gooptu, N. (2011). Economic Liberalization, Urban Politics and the Poor. in Ruparelia, S. (ed.), *Understanding India's new political economy: A great transformation?*. (35-48) Abingdon, Oxon: Routledge.

Government amends land reforms laws to cut red tape - The Times of India. (July 26, 2014). Retrieved April 10, 2015, from http://timesofindia.indiatimes.com/city/bengaluru/Government-amends-land-reforms-laws-to-cut-red-tape/articleshow/39004011.cms

Government of Karnataka. (1962) The Karnataka Land Reforms Act, 1961. [pdf file] Available from http://dpal.kar.nic.in/10%20of%201962%20(E).pdf

Government of Karnataka. (2006). Karnataka Agricultural Policy 2006. [pdf file]. Available from http://raitamitra.kar.nic.in/Agri%20Policy%20eng.pdf

Government of Karnataka. (2011). Integrated Agribusiness Development Policy 2011. [pdf file]. Available from https://www.karnataka.gov.in/Documents/Integrated-AgriBusiness2-RN-8pm.pdf

Graeber, D. (2011). *Debt: The first 5,000 years*. Brooklyn, N.Y: Melville House.

Gubser, M. (January 01, 2012). The presentist bias: ahistoricism, equity, and international development in the 1970s.(Report). *Journal of Development Studies, 48,*12.)

Gupta, A. (1998). *Postcolonial developments: Agriculture in the making of modern India*. Durham: Duke University Press.

Hanumantha, R. C. H. (1994). *Agricultural growth, rural poverty, and environmental degradation in India*. Delhi: Oxford University Press.

Harriss, J. & Corbridge, S. (2010). The Continuing Reinvention of India. in Corbridge, S., & Sengupta, C. (eds). *Democracy, development and decentralisation in India: Continuing debates*. (38-59). London: Routledge.

Harriss-White, B., & Janakarajan, S. (June 21, 1997). From Green Revolution to Rural Industrial Revolution in South India. *Economic and Political Weekly, 32,* 25, 1471-1477.

Harriss-White, B., Janakarajan, S. & Colatei, D. (2004). Introduction: Heavy Agriculture and Light Industry in South Indian Villages. in Harriss-White, B., & Janakarajan, S. (Eds.). *Rural India facing the 21st century* (Vol. 1). (3-46). Anthem Press.

Harvey, D. (January 01, 2003). The `New' Imperialism: Accumulation by Dispossession.*The Socialist Register,* 63-87.

Hebbar, R. (2010). Framing the Development Debate: The Case of Farmers' Suicide in India. in Corbridge, S., & Sengupta, C. (eds). *Democracy, development and decentralisation in India: Continuing debates*. (84-110). London: Routledge.

Indian Agricultural Research Institute. (2006). Agriculture Policy: Vision 2020. [pdf file]. Available from http://www.planningcommission.nic.in/reports/genrep/bkpap2020/24_bg2020.pdf

Janakarajan, S. (2004). Irrigation: The Development of an Agro-Ecological Crisis. in Harriss-White, B., & Janakarajan, S. (Eds.). *Rural India facing the 21st century* (Vol. 1). (59-77). Anthem Press.

Jannuzi, F. T. (1994). *India's persistent dilemma: The political economy of agrarian reform*. Boulder: Westview.

Kirk, J. A. (2011). *India and the World Bank: The politics of aid and influence*. London: Anthem.

Kraske, J. (1997). *India and the World Bank*. Washington DC : World Bank. http://documents.worldbank.org/curated/en/1997/08/17612000/india-world-bank

Krishna, A. (July 01, 2013). Stuck in Place: Investigating Social Mobility in 14 Bangalore Slums. *The Journal of Development Studies, 49,* 7, 1010-1028.

Kumar, R. (2014). The Perils of Productivity: Making 'Good Farmers' in Malwa, India. *Journal of Agrarian Change*.

Latham, M. E. (2011). *The right kind of revolution: Modernization, development, and U.S. foreign policy from the Cold War to the present*. Ithaca: Cornell University Press.

Lee, Z. (November 20, 2014). "Conversations" on technological utopias vs. tackling structural injustice in the global food system. Retrieved November 30, 2014, from http://www.iatp.org/blog/201411/"conversations"-on-technological-utopias-vs-tackling-structural-injustice-in-the-global-

Lerche, J., Shah, A., & Harriss-White, B. (July 01, 2013). Introduction: Agrarian Questions and Left Politics in India. *Journal of Agrarian Change, 13,* 3, 337-350.

Levien, M. (January 01, 2012). The land question: Special economic zones and the political economy of dispossession in India. *Journal of Peasant Studies, 39,* 933-969.

Levien, M. (March 01, 2013). Regimes of Dispossession: From Steel Towns to Special Economic Zones. *Development and Change, 44,* 2, 381-407.

Li, T. (2007). *The will to improve: Governmentality, development, and the practice of politics*. Durham: Duke University Press.

McMichael, P. (2008). Peasants make their own history, but not just as they please... *Journal of Agrarian Change*, *8*(2□3), 205-228.

McMichael, P. (2009). Banking on agriculture: a review of the World Development Report 2008. *Journal of Agrarian Change*, *9*(2), 235-246.

McMichael, P. (May 01, 2013). Value-chain Agriculture and Debt Relations: contradictory outcomes. *Third World Quarterly, 34,* 4, 671-690.

Mitchell, T. (2002). *Rule of experts: Egypt, techno-politics, modernity*. Berkeley: University of California Press.

Narasimha, R. D., & Mishra, S. (2009). *Agrarian crisis in India*. New Delhi: Oxford University Press.

Narayana, M. R. (November 01, 2011). Globalization and Urban Economic Growth: Evidence for Bangalore, India. *International Journal of Urban and Regional Research,35,* 6, 1284-1301.

National agri market, FCI reform Modi's keys to revive farm sector. (July 11, 2014). Retrieved January 29, 2015, from http://indianexpress.com/article/india/india-others/national-agri-market-fci-reform-modis-keys-to-revive-farm-sector/

Nehru, J. (1956). *Planning and development: Speeches of Jawaharlal Nehru, (1952-56).* Delhi: Publications Division, Ministry of Information and Broadcasting.

Nehru, J., & Indian Council of Agricultural Research. (1989). *40 years of agricultural research and education in India*. New Delhi: Publications and Information Division, Indian Council of Agricultural Research.

Ong, A. (2006). *Neoliberalism as exception: Mutations in citizenship and sovereignty*. Durham [N.C.: Duke University Press.

Ong, A. (2011) Introduction: Worlding Cities or the Art of Being Global. in Roy, A., & Ong, A. (eds.). *Worlding cities: Asian experiments and the art of being global*. (1-26). Chichester, West Sussex: Wiley-Blackwell.

Oya, C. (July 01, 2009). The World Development Report 2008: inconsistencies, silences, and the myth of 'win-win' scenarios. *Journal of Peasant Studies, 36,* 3, 593-601.

Patel, R. (2013). The long green revolution. *Journal of Peasant Studies, 40,*1, 1-63.

Patnaik, U. (2005). The agrarian market constraint in India after fourteen years of economic reforms and trade liberalisation*. *South Asia: Journal of South Asian Studies, 28,* 2, 233-247.

Patnaik, U. (July 01, 2007). New Data on the Arrested Development of Capitalism in Indian Agriculture. *Social Scientist, 35,* 4-23.

Peck, J., Theodore, N., & Brenner, N. (May 01, 2013). Neoliberal Urbanism Redux?. *International Journal of Urban and Regional Research, 37,* 3, 1091-1099.

Peck, J., Theodore, N., & Brenner, N. (June 26, 2009). Neoliberal Urbanism: Models, Moments, Mutations. *Sais Review, 29,* 1, 49-66.

Polanyi, K. (1957). *The great transformation*. Boston: Beacon Press.

Prashad, V. (2012). *The poorer nations: A possible history of the Global South*. London: Verso.

Prusty, N., & Daniel, F. (April 23, 2015). Modi land bill delayed amid rising anger in rural India. Retrieved April 25, 2015, from http://in.reuters.com/article/2015/04/23/india-farmers-idINKBN0NE1IQ20150423

Purcell, M. (September 01, 2003). Citizenship and the right to the global city: reimagining the capitalist world order. *International Journal of Urban and Regional Research, 27,* 3, 564-590.

Raghuram, P., Noxolo, P., & Madge, C. (March 01, 2014). Rising Asia and postcolonial geography. *Singapore Journal of Tropical Geography, 35,* 1, 119-135.

Roy, A. (January 01, 2011). Slumdog cities: rethinking subaltern urbanism. *International Journal of Urban and Regional Research, 35,* 2, 223-38.

Saha, M. (2013). Food for Soil, Food for People: Research on Food Crops, Fertilizers, and the Making of "Modern" Indian Agriculture. *Technology and Culture, 54,*2, 289-316.

Saha, M. (April 01, 2013). The state, scientists, and staple crops: Agricultural " modernization" in pre-green revolution India. *Agricultural History, 87,* 2, 201-223.

Shah, M., Rao, R., & Shankar, P. S. V. (April 14, 2007). Rural Credit in 20th Century India: Overview of History and Perspectives. *Economic and Political Weekly, 42,* 15, 1351-1364.

Shrivastava, A., & Kothari, A. (2012). *Churning the earth: The making of global India*. New Delhi: Penguin.

Singh, D., Tsiang, M., Rajaratnam, B., Diffenbaugh, N. S., Rajaratnam, B., Diffenbaugh, N. S., & Rajaratnam, B. (January 01, 2014). Observed changes in extreme wet and dry spells during the south Asian summer monsoon season. *Nature Climate Change, 4,* 6, 456-461.

Sud, N. (August 01, 2014). Governing India's Land. *World Development, 60,* 1, 43-56.

Taylor, M. (May 01, 2013). Liquid Debts: credit, groundwater and the social ecology of agrarian distress in Andhra Pradesh, India. *Third World Quarterly, 34,* 4, 691-709.

Taylor, M. (October 01, 2011). 'Freedom from poverty is not for free': Rural development and the microfinance crisis in Andhra Pradesh, India. *Journal of Agrarian Change, 11,* 4, 484-504.

Taylor, M. (October 01, 2012). The antinomies of 'financial inclusion': Debt, distress and the workings of Indian microfinance. *Journal of Agrarian Change, 12,* 4, 601-610.

Tsing, A. L. (2005). *Friction: An ethnography of global connection*. Princeton, N.J: Princeton University Press.

Vakulabharanam, V. (January 01, 2005). Growth and distress in a South Indian peasant economy during the era of economic liberalization. *Journal of Development Studies,416,* 971-997.

Vakulabharanam, V. and Motiram, S. (2011). Political Economy of Agrarian Distress in India Since the 1990s. in Ruparelia, S. (ed.), *Understanding India's new political economy: A great transformation?*. (101-126) Abingdon, Oxon: Routledge.

Vasavi, A. R. (1999). *Harbingers of rain: Land and life in South India*. New Delhi: Oxford University Press.

Vasavi, A. R. (2009). Suicides and the making of India's agrarian distress. *South African Review of Sociology, 40,* 1, 94-108.

Walker, K. L. M. (October 01, 2008). Neoliberalism on the Ground in Rural India: Predatory Growth, Agrarian Crisis, Internal Colonization, and the Intensification of Class Struggle. *Journal of Peasant Studies, 35,* 4, 557-620.

World Bank. (2004). *India - Re-energizing the Agricultural Sector to Sustain Growth and Reduce Poverty*. Washington, DC: World Bank. Available from http://documents.worldbank.org/curated/en/2004/07/5050863/india-re-energizing-agricultural-sector-sustain-growth-reduce-poverty

World Bank. (2007). *Agriculture for development*. Washington, D.C: World Bank.

World Bank. (2008). *India - Taking agriculture to the market*. Washington, DC: World Bank. Available from http://documents.worldbank.org/curated/en/2008/10/9999533/india-taking-agriculture-market

World Bank. (2014). *India - Accelerating agricultural productivity growth*. Washington, DC : World Bank Group. Available from http://documents.worldbank.org/curated/en/2014/05/23789323/india-accelerating-agricultural-productivity-growth

Wright, C. (May 26, 2014). Modi's To-Do List: Priorities For A New India. Retrieved January 14, 2015, from http://www.forbes.com/sites/chriswright/2014/05/26/modis-to-do-list-priorities-for-a-new-india/