The Village Lottery

A STUDY OF INDEX BASED AGRICULTURAL INSURANCE IN TAMIL NADU AND THE RESHAPING OF FARMER VULNERABILITY

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All the farmers in Tamil Nadu that helped with the study
My Family
Abstract
Index Based Agricultural Insurance (IBAI) is being promoted as the ultimate fix to address the risk faced by farmers in the current context of climate change. India is said to have one of the largest weather-index insurance markets amongst developing countries. However, the success of the product has been questioned because of the low levels of effective demand seen from farmers. Certain studies have suggested that this problem is a result of financial illiteracy amongst farmers. However, these papers have left out the voices of farmers. As such, this paper critically evaluates that claim by incorporating and analyzing farmers’ perceptions and experiences with IBAI in the state of Tamil Nadu. The study consists of two case studies in the districts of Nagapattinam and Tirunelveli, where farmers who had been part of IBAI were interviewed. The study argues that their experiences situate the product within the process of roll-out neo-liberalization. As such, instead of addressing the risk faced by farmers, IBAI introduces and reproduces dimensions of vulnerability by entrenching processes of agrarian financialization, commodification, and modernization.

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<tr>
<td>CIKS</td>
<td>Centre for Indian Knowledge Systems</td>
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<td>IBAI</td>
<td>Index Based Agricultural Insurance</td>
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<tr>
<td>WBCI</td>
<td>Weather Based Crop Insurance Scheme</td>
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<tr>
<td>NAIS</td>
<td>National Agriculture Insurance Scheme</td>
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<tr>
<td>MNAIS</td>
<td>Modified National Agriculture Insurance Scheme</td>
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<tr>
<td>AIC</td>
<td>Agriculture Insurance Company of India Limited</td>
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<td>KKFF</td>
<td>Kazhi Kadaimadai Farmer Federation</td>
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<tr>
<td>SOFA</td>
<td>Sirkazhi Organic Farmers Association</td>
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<td>IFI</td>
<td>International Financial Institution</td>
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Glossary

Adverse Selection
A phenomenon in which insurance is inordinately purchased by those exposed to greater risks than the average population.

AIC
Agriculture Insurance Company of India a private company but under administrative control of ministry of finance and supervision by ministry of agriculture

Basis Risk
Instances in which the payouts as determined by the weather indices fail to represent the actual risk crop loss faced by farmers

CIKS
Centre for Indian Knowledge Systems is an Trust based in Tamil Nadu that works in the revitalization of traditional knowledge systems in agriculture

Crop Cutting Experiments
Sampling process by which crop yields are statistically estimated in each insurance unit

Homogenous Area Approach
Homogeneous area approach: both indemnities and premiums are estimated on the basis of area yields. All farmers on the area as indemnified irrespective of their actual yield if the area yield is less than the guaranteed yield

IBAI
Index Based Agricultural Insurance: a type of crop insurance which uses indices to calculate indemnity payments. Said to solve the problems with adverse selection and moral hazard faced by individual crop insurance.

Indemnity Payouts
The losses paid or expected to be paid directly to an insured by an insurer for coverages

Individual Approach
A farmer is compensated whenever his yield is less than the guaranteed yield. Premiums and Indemnities are estimated using area yields and are adjusted using the actual crop yields of the individual farmer

KKFF
Kazhi Kadaimadai Farmers Federation: Based in Nagapattinam involved in the distribution of IBAI products in the region
Moral Hazard
Moral Hazard Instances were insured individuals may change their risk behaviors to increase the likelihood of receiving a payout

NAIS
National Agriculture Crop Insurance Scheme Uses an area based index approach calculated through crop cutting experiments.

Premiums
An amount to be paid for an insurance policy.

SOFA
Sirkazhi Organic Farmers Association: based in Nagattinam. It was originally promoted by CIKS involved in the distribution of Varsha Bima.

PWSD-CARDS
NGO based in Tirunelveli District involved in the distribution of WBCI

Varsha Bima
Weather index insurance also known as the Rain Fall insurance implemented by the AIC

WBCI
Weather Based Crop Insurance

Insurer of Last Resort
Central bank of a country that has the authority and financial resources to act as the ultimate source of credit
Introduction

On January 4th 2016, as I was writing this thesis, Tamil Nadu’s Chief Minister Jayalalithaa announced that the unprecedented rains from the north east monsoon had claimed the lives of over 470 people, 100000 livestock, and 383000 hectares of damaged crops (The Hindu, 2016). I had recently returned from a 9-month internship in Tamil Nadu where I was conducting research and working with the Centre for Indian Knowledge Systems, a trust and research center consisting of Indian farmers and scientists who for over two decades have focused on the revitalization of Indian knowledge systems in agriculture. During my time at CIKS there was a dire sense of distress by farmers as a result of the severe droughts they were experiencing. In fact, the state had been plagued by these droughts for the three years. There were state wide rain deficits of 20% and 23% from the annual averages in 2012 and 2013 respectively (The Hindu, 2014). The severe droughts followed by unprecedented amounts of rains are representative of the increasingly volatile environments which farmers are having to navigate. However, the avenues through which these farmers are managing such risks have also been shaped by dynamic processes of agricultural transformations which are constantly changing their relationship with the natural world. Consequently, there is a vital need to understand the avenues through which farmers are now managing risks.

This research is focused on the emergence of Index Based Agricultural Insurance (IBAI), a financial product that has been promoted by international financial institutions (IFI) and governments as the ultimate solutions for inclusive agricultural risk management in the Global South. Despite the vociferous promotion of IBAI products in India by powerful actors, the products’ success has been put to question as a result of continued low demand by farmers. The low demand has been predominantly interpreted by academics and the state as a lack of financial
literacy amongst farmers. This has subsequently led to the establishment of an industry for financial literacy of the poor. Under this context, the main motive of this thesis is to understand the ways in which IBAI products in Southern India are reshaping farmers’ vulnerabilities and redefining the avenues through which they can manage risk.

Despite a proliferation of studies looking to explicate the unexpected low levels of demand of IBAI, there is a problematic gap in the literature with regards to farmers’ perspectives and their understanding of the politics involved in the promotion of such a product. In looking to address the main research question and to fill the gap above, this study aims to incorporate farmers’ voices into the discussion so as to better understand the implications that IBAI may have for the agricultural sector. To this point, the research has three overlapping objectives. The first objective is to use farmers’ conceptualizations and experiences with IBAI as a way to situate it within the multi-dimensional agrarian transformation in India since colonial times. The second objective is to understand how IBAI relates to the production and reproduction of dimensions of farmer vulnerability, which have been characteristic of changing agrarian spaces. Building upon such objectives, The last objective builds on the first two points and looks to understand the implications of IBAI for farmer risk management and for the reshaping of agrarian spaces at large.

The study consisted of two case studies: one in the districts of Nagapattinam and the other in the district of Tirunelveli in the Indian state of Tamil Nadu. Each of these case studies was focused on one of the two major IBAI products provided by the state. The two products studies were Varsha Bima, a private sector crop insurance product, and the Weather Based Crop Insurance scheme, a central government crop insurance scheme. The methodologies used during the studies consisted of semi-structured interviews with all actors of each of the IBAI product’s supply chain. Research questions were designed in collaboration with staff members at my placement.
organization, farmers, and my thesis supervisor, Professor Ryan Isakson. For a copy of research questions refer to Appendix 5. There was a specific focus on the stories told by interviewees at the farmer level of the supply chain. Farmers were involved as both policyholders and sub-agents of the IBAI products. Over the two case studies, a total of 22 interviews were conducted. A breakdown of the interviewees is provided in Appendix 4.

The data was analyzed through the use of a strong theoretical framework on relational political ecology and relational political ecology as presented by Marcus Taylor (2015). The relational political ecology provided a lens for me to “grapple with the complex coupling of human and meteorological forces through which our lived environments are actively yet unequally produced” (Taylor, 2015, p.2). This was particularly useful in identifying the relational dimensions of the vulnerability that farmers described in regard to changing agrarian spaces and the introduction of IBAI. However, the framework also showed limitations in terms of identifying spaces for farmer agency. This limitation was navigated by engaging with literature on neoliberal governance and the spaces for agency within it.

The significance of understanding the role of IBAI in the context of farmer vulnerability is rooted in the production of our current food system, which has been characterized by the marginalization of smallholders and the dispossession of their traditional knowledge systems. This study argues that farmers’ perspectives and experiences regarding the promotion with, the limitations of, and the low uptake of IBAI show that the product fits into an upsurge of roll-out neoliberalism. This is a neoliberal dimension which looks to entrench the neoliberal project by responding to the market failures of deregulation promoted during the period of roll-back neoliberalism in the 1980s and 1990s through deceitful state promotion and protection of the private markets. This became apparent in the new dimensions of relational vulnerability, which
farmers ascribed to the introduction of the product as well as the ability of the product to entrench existing dimensions of vulnerability through processes of commodification, financialization and modernization of agrarian relations.

The argument is presented through six chapters. The first chapter presents a literature review of pertinent sources with a specific focus on the relational political ecology framework and the conditions that led to the rise of IBAI. The second chapter presents the methodology used at the time of data collection and analysis as well as a discussion of my positionality as a researcher and its implications to the study. The third chapter presents a recount of the ways in which the agricultural transformation in post-independence India led to the conditions which led to the rise of IBAI. The fourth chapter contextualized the supply chain of actors involved in the provisioning of Varsha Bima and WBCI in preparation for the analysis of farmers’ experiences with the products. The fifth chapter presents an analysis of farmers’ perceptions and experiences with changing agrarian relations and the role of IBAI within such changing relations. The sixth chapter situates the IBAI within the construction of neoliberal reason and presents the consequent implications for agrarian spaces and the reshaping of farmer vulnerability.
1. Literature Review

The significance of studying Index Based Agricultural Insurance (IBAI) in the context of farmer vulnerability is rooted in the historical production of our current global food system. Through four sections, the following chapter provides a review of debates in literature pertinent to the study of IBAI. The first section presents the theoretical framework of relational political ecology and considers the production of relational vulnerability. This section also debates the strengths and limitations of using such a framework as a means of contextualizing farmers’ marginalities. The second section evaluates debates on the production of farmer vulnerability in the current global food system with an emphasis on the dismantling of moral economies, the modernization of agriculture, the rollback of state protection under neoliberal restructuring, and the commodification of agrarian relations. Expanding on the commodification of agrarian relations, the third section considers the rise of the development agenda of “financial inclusion” and a resulting financialization of agricultural food systems. The last section describes the conditions that gave rise to IBAI in the Global South, and existing debates regarding the role of the product in the context of the global food system and the production of farmer vulnerability.

1.1 Relational Political Ecology and Relational Vulnerability

1.1.1 Relational Political Ecology

The purpose of using a relational political ecology analytical framework as a way to understand the role of IBAI is that it “helps us grapple with the complex coupling of human and meteorological forces through which our lived environments are actively yet unequally produced” (Taylor 2015, p.2). This theoretical framework is based on a reworking of a political ecology framework. Authors such as Peet and Watts (2004) and Neumann (2005) have done thorough historical reconstructions of the field of political ecology, which is rooted in ecology and political
economy. Through the combination of both fields, early political ecology “encompasses the constantly shifting dialectic between classes and groups within society.” (Blaikie and Brookfield, 1987, p.17). The difference between the political ecology framework and the reworking of the framework by Taylor is a focus on a relational dimension of the complex dialectic between human and nonhuman agencies as they redefine their relationships with natural worlds (2015). The relational dimension of the framework looks at the production and reproduction of interlocking processes of security and vulnerability through a focus on unequal structures of power across spatial scales (Peet, Robbins, and Watts, 2011). In this context, relational political ecology shows how unequal power distributions within relations of class, gender, and ethnicity influence the hierarchies existing within local resource management and distribution (Mosse, 2007; Taylor, 2015). Overall, the relational political ecology framework asks the following question: “How are our lived environments, in both social and climatic dimensions, actively produced through the complex interactions of human and nonhuman agencies in ways that are markedly unequal?” (Taylor, 2015, p.17).

This theoretical framework requires us to look at social context and the relations of differential power that determine farmers’ political rights and their abilities to control economic surpluses when analyzing the impact that environmental events have on their livelihoods, assets, and access to entitlements (Isakson, 2015). In this way, relational political ecology improves on a cultural ecologist’s representation of rural communities as unitary and constrained entities, by acknowledging the stratified and dynamic nature of such spaces and the plurality of interests that exist within them (Robbins, 2000). This relational political ecology framework facilitates a dynamic understanding of the complex production and reproduction of farmer vulnerability.
1.1.2 Relational Vulnerability

The relational lens on the vulnerability framework represents a diversion from the ways in which the existing literature on climate change, human security, and resilience has historically referred to the production of vulnerability. The climate change adaptation framework presented by IPCC frames vulnerability as a product of an exposure to external threats. This perspective can be understood through a static and linear inside/outside dichotomy (Taylor, 2015). This interpretation results in a push to technocratic and managerial interventions in response to the production of vulnerability. For example; an extensive study of the climate change adaptation literature showed that over 70% describe adaptation as a technical process of planned social engineering to protect against climatic threats (Bassett and Fogelman, 2013). The literature on adaptation has been challenged by authors who emphasize the key role of pre-existing social differentiation in the production of vulnerability within the context of climate change (O’Brien et al., 2010; Peeling, 2011).

The introduction of inequality into a vulnerability framework must also be accompanied by discussions of power relations. This entails looking at the way in which forms of power are produced and how they operate across spatial scales and dynamic relationships, thus creating inequalities and vulnerabilities (Blaikie, 1994; Bohle et al., 1994; Oliver Smith, 2004). A relational political ecology framework looks at differentiated impacts in the context of multi-scalar power dynamics and how they reshape the uneven production of our lived environments (Mustafa, 2005). As a result, the relational dimension requires a closer look at the relational process through which the vulnerability of some may have a direct implication to the security of others. Vulnerability can be produced and reproduced over time by the influence of differential power dynamics and the relational processes that shape our lived environments (Mosse, 2007; Mosse, 2010; Collins, 2010).
Overall, the relational political ecology framework as presented by Taylor looks at vulnerability as “an expression of complex socio-ecological relations between social groups, classes and genders in which such social agents are actively yet unequally seeking to transform their lived environments in a given historical context” (2015, p.9). Debates regarding the production of vulnerability will be used to explain the dichotomy of perspectives regarding the role of Index Based Agricultural Insurance in India and the world.

1.1.3 Limitations and Responses

There as a series of limitations that arise from using utilizing a political ecology framework as a means of understanding the production of our lived environments and vulnerability. This section focuses on the limitations that are relevant to the study of agrarian relations. Walker (2005) questions the extent to which the focus on power relations within ecological processes has neglected to acknowledge the role of an ecological process by focusing on the anthropocentric production of lived environments. The main question that he raises is whether political ecology is becoming more about the politics and less about ecology, which is understood as the environmental knowledge of our natural environments. The question alludes to critic that in political ecology the intervention of ecology seems to be understood as an external factor that interplays with pre-existing power relations (Moore, 2013). Forsyth responds to such criticisms by emphasizing “how uncritical environmental science and structural politics give rise to environmental narratives and beliefs that are simplistic and frequently unhelpful to poor people. Political ecology should not adopt separate understandings of politics or ecology, or see one as a guide to the other” (Forsyth, 2008, p.8).

To a certain extent the relational dimension of the political ecology framework mitigates the separation of the political from the ecological. The incorporation of a spatial scale allows us to
see “how the violent destruction of landscape in one place can rebound very much to the benefits of landscapes in other” (Mitchell, 2003, p.791). The production and reproduction of socio-ecological environments are dynamic processes that are continuously and actively occurring. As a result, “the ability of humans to act, to accumulate, and to transform the world around them depends on a field of relations that inherently involves nonhuman agencies that often betray an unruly resistance to anthropogenic intentions” (Taylor, 2015, p. 14). It is exactly through this focus on complex relations of power within and between groups in society and their dynamic relations to nonhuman agencies such as climatic volatility that the relational lens mitigates the separation of the political from the ecology within the political ecology debate.

Another limitation of the political ecology framework which affects the analysis of this study is present through the dichotomy of nature and society. This raises a question in regard to the role of agency by marginal groups in producing lived environments within the acknowledgment of unequal structures of power. The concern is that the strong focus on differential power dynamics might obscure the role of agency by some of the most marginalized populations (Mitchell, 2003). In response to this limitation, this study engages with the work of Hirschman (1970) and Scott (1985) to explores the avenues through which vulnerable populations can navigate their agency as they express resistance to the dimensions of vulnerability which result from the embedded differential power dynamics that define their lived environments. Hirschman refers to expressions of resistance in the form of either “exit” or “voice” which are used by members (consumers) in response to deteriorating relationships with organizations (industries). The extent to which resistance is expressed in the form of “exit” or “voice” is representative of the loyalty that exists in the relationship between the member and the organization (1970). Scott defines a spectrum in which subtle expressions of “everyday forms of resistance” by vulnerable
populations exist. He explains “most of the political life of the subordinate groups is to be found neither in the overt collective defiance of powerholders nor in complete hegemonic compliance, but in the vast territory between these two polar opposites”(Scott 1985: 136).

1.2 Production of Farmer Vulnerability

1.2.1 Agricultural Transformation

The conditions that led to the rise of IBAI in the Global South are rooted in the dynamic process of agricultural restructuring of the last three decades, and the effect it has had on the vulnerability of marginal farmers. This section focuses on presenting existing debates regarding the process of neoliberal restructuring which has characterized this agricultural transformation. The neoliberal restructuring has resulted in the liberalization of agriculture as seen through the establishment of new world trading regimes for agricultural products, and the privatization and establishment of markets that determine the organization, production, and circulation of the agricultural value chain. This process has transformed the workings of the global food system. There is an economic concentration at all levels of the agricultural value chain characterized by tight inter-linkages and vertical and horizontal integration amongst transnational corporations (IAASTD, 2009; Clapp, 2012). It has also changed the production methods and types of agricultural goods that get produced. For farmers, the change has been characterized by the integration into exchange and capitalist accumulation dynamics. Because the various groups within the agricultural value chain have experienced different impacts due to the neoliberal restructuring, the literature surrounding the effects of this phenomenon has been ambivalent.

1.2.2 Neoliberal Restructuring: Debates

Proponents of neoliberal modernization such as the World Bank, the Gates Foundation, the Rockefeller Foundation, AGRA, the G8, and FAO have alluded to the argument that farmers’
vulnerability should be addressed by integrating small holder farmers into the global food commodity chains (McMichaels, 2013). They argue that this will increase the agricultural market size and grant small holders more access to investment opportunities and new technologies (World Bank, 2008). This string of literature suggests that the production and persistence of vulnerability throughout agricultural transformation are the result of the failure of neoliberal modernization to become sufficiently generalized (Van Tran, 2002). Through this argument, proponents of neoliberal modernization have promoted market conforming re-regulations by Global South governments following decades of strictly enforced deregulation (Peck, 2010). They justify market re-regulation as long as it promotes the complete generalized integration of small holders into the modernized global food system, arguing that this movement will increase not only the income of such farmers but also their agricultural productivity (Van Tran, 2002; Heong and Hardy, 2005). Peck and Tickell (2002) situate the phenomenon of market conforming re-regulation within the evolutionary process of neoliberal reasoning. They suggest that it represents a process of roll-out neoliberalism which looks to entrench the neoliberal project by responding to the market failures of deregulation promoted during period of roll-back neoliberalism of the 1980s and 1990s through deceitful state promotion and protection of the private markets.

Critiques of neoliberal restructuring argue that this process of agricultural transformation has required a violent process of social engineering through which power structures and the coordinated role of state power has led to processes of commodification of land and labour (Cowen and Shenton, 1996). Furthermore, McMichael argues that the integration of small holders into liberalized agricultural value chains “will generally serve private accumulation via extraction of rents and resources from smallholders” (2013, p.687). Consequently, the process of agricultural neoliberal modernization and increasing productivity has been characterized by the rise of
vulnerabilisation and dispossession (Taylor, 2015). Taylor argues that the technologies which agrarian modernization promoters champion as being capable of leading to poverty reduction are in fact instituting new accumulation strategies and new forms of vulnerabilities for marginal farmers (2015). A relational political ecology views this agricultural transformation as one “mapped out over agrarian environments stratified by strikingly uneven degrees of power and privilege” (Taylor, 2015, p.99).

The resulting production of relational vulnerability for marginal farmers is evident through the emerging paradoxes of such neoliberal transformation. These paradoxes are representative of unequal power structures and show how securities of powerful actors reflect vulnerabilities for already marginal ones (Taylor, 2015). The 2008 food price crisis is one of such paradoxes, as the increasing food insecurity and vulnerability for the most marginalized populations occurred during a time when agro-corporations were enjoying record profits (Grain, 2008). In addition, the relative abundance in agricultural productivity brought forth by the industrialization dimension of neoliberal modernization has co-existed alongside the rising inability by a significant and isolated proportion of the world's population to get adequate access to nutritional food. In 2010, IFAD estimated that around 70 % of the world’s 1.4 billion extremely poor live in rural areas and experience frequent malnutrition despite their imperative role within food production (IFAD, 2010). It is, in fact, these very populations who will suffer the most from the changes brought forth by climate change, thus elucidating the complex ecological dimension within the production of relational vulnerability (IFAD, 2013; Taylor, 2015).

Some authors have also focused on the de-agrarianisation of rural spaces as a direct result of agricultural neoliberal modernization. They argue that for many smallholders, the process of modernization is one that signifies a movement out of the rural sector and into wages labor and
petty commodity production. As a result, the process of increasing farm productivity through neoliberal modernization reproduces existing and new forms of vulnerabilities for small and marginal farmers (Rigg, Salamanca, and Parnwel, 2012; Akram-Lodhi, 2013; Patel, 2007). The process of de-agrarianisation is also exacerbated by the rise of land grabs which is facilitated through the influx of foreign direct investment resulting from the opening of the economies (Borras, Kay, and Lahiff, 2007). Land grabs occur in a context in which neoliberal reforms through instituting private property rights and land titling have promoted the privatization of communal land holdings, facilitating the dispossession of traditional land rights (Hall, Hirsch, and Li, 2011).

Other authors have focused on the relationship between neoliberal modernization and the process of agricultural financialization. They look at the ways in which new inter-linkages and behavioral patterns between agro-corporations and financial institutions help to reproduce the process of vulnerability for marginal farmers (Isakson, 2014; Clapp, 2012). There has also been a focus on the agrarian change literature regarding processes of dismantling traditional forms of agricultural knowledge as a result of agricultural transformation. This dismantling has in many cases been purposely pushed by modernization promoters in an effort to oblige small holders to transform their environments (Asad, 1992; Scott, 1999). All of such strings of the literature will be relevant in the context of studying the role of Index Based Agricultural Insurance that reshape of farmer vulnerability.

1.3. Development as Financial Inclusion

1.3.1 Origins and Critiques

The idea of development through financial inclusion emerged from the production of a “risk society” where financial and private markets have been set to undertake the provisioning of rights and entitlement that used to be provided through the state prior to liberalizations (Maurer,
The deregulation and liberalization of Global South economies was promoted under a discourse of a strong and positive correlation between financial inclusion and development (Sarma and Pais, 2010).

The discourse is deeply rooted on modernization theory of development which understands this process as a linear and isolated one, decontextualizing the complex and stratified interplay of global actors involved in the process. A World Bank publication on financial inclusions argues that “addressing financial sector imperfections [in reference to exclusion of the poor] can also appeal to a wider range of philosophical perspectives than can redistributive policies inasmuch as the latter are directly linked with equalizing outcomes, whereas better functioning financial systems serve to equalize opportunities” (Demirgüç-Kunt, Beck, and Honohan, 2008, p. 25). However, the origins of such markets imperfections needs to be problematized within dependency theory of development in acknowledging the differentiated avenues through which global south (periphery) and western economies (core) were pressured to liberalize their markets (Clapp, 2012). Consequently, Vakulabharanams emphasizes the need to consider the “possibility that trade liberalization might simply be a way of propping up a subsidy-supported First World agriculture at the expense of the millions of farmers who are on the verge of life and death in the less developed world.” (2005, p.994). The way in which this uneven trade rules during the process of agricultural liberalization played out in the Indian context will be further unpacked in Chapter 3.

At a national level the liberalizations and deregulations created a vacuum for poor and marginal populations who are relatively more vulnerable to risk, but who have also been historically excluded from financial markets (Isakson, 2015). The agenda of development as financial inclusion aims to rectify the failure and bias of financial markets in addressing the risk
of the poor. This is to be done in a way that is profitable to the private capitalist. Roy expresses this process in terms of a purported democratization of private and financial capital (2010).

The literature on financial inclusion is divided in regards to the implications of efforts to promote the financial inclusion of previously marginalized populations. Proponents of this agenda see it as a strategy to alleviate poverty by including the marginalized and allowing them to capitalize on risk and market opportunities (Word Bank, 2008; Cull, Ehrbeck, and Holle, 2014; United Nations, 2006). Contrastingly, a segment of the literature has critiqued this agenda arguing that it is only a band-aid solution and that it may exacerbate the economic vulnerability of marginalized groups. Such critiques also emphasize the unsustainable increase in debt since the deregulations of the 1990s which have been observed to occur as result of the inclusion of marginal populations into financial markets (Roy, 2010; Taylor, 2012; Rankin, 2013; Soederberg, 2014). In response, defenders of financial inclusion have argued that the problems faced by financial inclusion are a result of insufficiently formed markets, and so they emphasize a need to deepen the process of financial inclusion by further increasing the size and scope of such markets (Barnett et al. 2008). What appears to be a middle ground perspective provides a separate argument for the non-profit and for-profit forms of development as financial inclusion. It argues that although for-profit micro-financing is innately problematic, non-profit efforts can still play a small and partial role in addressing the biases of the financial market (Gosh, 2013). However, the role of non-profits within the financial inclusion project needs to be problematized within the construction of neoliberal thinking. In the theory of roll-out neoliberalism Peck describes it as “an explosion of “market-conforming” regulatory incursions [such as] the selective empowerment of community organizations and NGOs as (flexible, low-cost, non-state) service providers” (2010, p.23). This
suggests that the role of NGO’s within the financial inclusion agenda could be understood as a continuation of the neoliberal project.

The rise of microfinance has been at the forefront of the agenda of development as financial inclusion. By adhering to the vague assumption of a positive correlation between development and financial inclusion, proponents of the microfinance industry see it as a way of correcting the exclusionary nature of financial markets through the incorporation of the poor (World Bank, 2008; Cull, Ehrbeck, and Holle, 2014). Roy describes the microfinance industry as one representative of dominant development paradigms characterized by the transfer of philanthropic investments from the Global North to entities serving the marginalized populations of the Global South (Roy, 2010). However, within such transfer there is a multiplicity of stakeholders with very particular interests including international financial institutions such as the World Bank, foundations such as the Gates Foundation, private banks, as well as local elites. Given the complex role of mixed interests, Roy has questioned whether the real concern behind the microfinance industry is the inclusion of marginalized populations, or ensuring that doing so is profitable (2010).

Roy’s critique is representative of the polarized debate regarding the role of microfinance and its implications for poverty reduction. A section of this literature sees micro-financing as a form of “creative capitalism”, in that it allows the capitalist to access a lucrative market while simultaneously promoting poverty alleviation and economic development (Gates, 2008). Contrastingly, other have documented that the micro-finance industry doesn’t actually result in the poverty reduction of the families involved. A study in Hyderabad India from a microcredit program found no significant influences in health, education or women’s empowerment of the communities involved (Banerjee et al., 2012).¹ Roy suggests that the proliferation of microfinance represents a

¹ For other critiques of the relationship between poverty reduction and micro-finance in Bangladesh look at (Faraizi, Rahman, and McAllister, 2011) as well as (Karim, 2011)
financialization of development (2010). The following section looks at development as financial inclusion and its implications for the agricultural sector.

1.3.2 Commodification of Agricultural Risk

The promotion of a “development as financial inclusion” agenda has had disputed impacts on the agricultural sector. Some authors argue that microfinance products do not work well in agricultural production due to issues of high risk, seasonality, and slim profit margin (Harper, 2012; Marr, 2012). As discussed above, the promotion of micro-financing products within the agricultural sector has also led to unsustainable growth of debt (Taylor, 2011). However, proponents of such products suggest that the benefits will only become possible when the markets for such products are widespread and properly instituted. Micro-insurance and specifically Index Based Agricultural Insurance markets form part of the widespread of micro-finance markets (Barnett et al., 2008). Such insurance products help to mitigate the risk of financing small-scale agricultural production, thereby improving the ‘credit worthiness’ of peasant farmers. This is in keeping with a growing concern with the financial viability of the microfinance sector (Roy, 2010).

The growth of such products implies a commodification of agricultural risk (Isakson, 2015). However, risk is in and of itself not a commodity, it is naturally produced and not intended to be marketable. For this reason, Ribot suggests that risk can be understood in terms of “fictive commodities” and it can thus have detrimental effects on human society (2014). As observed by Polanyi, markets for such commodities will not emerge organically (1957). Clapp and Martin explain that the process of converting agricultural risk management into a commodity that can be exchanged requires technical innovation to de-bundle it as a product and be able to institute a price distinction mechanism to it (Martin and Clapp, 2015). Furthermore, Isakson emphasizes the need to create a market for the product. He compares the formation of risk exchange markets to those
of weather derivative markets and the extent of engineering that was required by the state (Isakson 2015). Moore suggests that the promotion of finance capital, such as the process of instituting a market for agricultural risk, can be understood as the reshaping of nature to facilitate the perpetual accumulation of capital and profits (2013).

1.4. Index Based Agricultural Insurance (IBAI)

1.4.1 Origins and Debates

This section presents the various dimensions and conditions that produced a void in risk management for small and marginal farmers which in turn provided a space for the rise of IBAI products in the Global South. Although such conditions are multilayered and dependent on context, they are also representative of transformations of our global food system. The roll-back of state support for the agricultural sectors as part of the structural adjustment of Southern economies during the 1980s and 90s created a vacuum for agricultural risk management (Clapp, 2012). Due to unprofitable prospects, as a result moral hazard\(^2\) and adverse selection\(^3\), the conventional agricultural insurance industry failed to fill in the vacuum for the risk management of small and marginal farmers (Da Costa, 2013). The proliferation of a discourse on development as financial inclusion, as seen through the emergence of microfinance, provided the backbone for the rationale behind IBAI as a solution to fill in the void left in risk management of small and marginal farmers.

As the name suggests, the IBAI works through weather based indices across geographical areas. IBAI has been organized such that the value of the payout that policyholders receive is determined by an index (eg rainfall index) that is in turn based on a measure converted from data

\(^2\) Moral Hazard: Instances were “insured individuals may change their risk behaviors to increase the likelihood of receiving a payout” (Johnson, 2013, p. 2664)

\(^3\) Adverse Selection: a phenomenon “in which insurance is inordinately purchased by those exposed to greater risks than the average population.” (Johnson, 2013, p.2664)
collected from weather stations. Through this mechanism, this form of insurance is said to address the problems of traditional insurance products as it reduces the transaction costs of verifying losses, resolves the problem of ‘moral hazard’, and alleviates the problem of ‘adverse selection’ (Isakson, 2015). The product is designed to be able to cover the risk of the most marginal farmers as it corrects the exclusivity caused by traditional insurance products which were normally yield-based. For these reasons, the product has been championed as an inclusive and efficient way to fix to the institutional failures of agricultural insurance (Isakson, 2015). In the context of climate change index insurance has also been promoted as playing a role in “supporting adaptation strategies in developing countries” (GPFI and IFC, 2011, p.42; Collier, Skees, and Barnett, 2009).

However, the literature on IBAI reveals opposing perspectives as to the actual role that the product plays in managing farmers risk and addressing their vulnerability. One part of the literature champions the product as a pro-poor technical fix to the risk faced by farmers (Skees and Collier, 2008; Barnett et al., 2008; GPFI and IFC, 2011; Varangis et al., 2002). Collier and Skees (2008) champion the product in its ability to include marginal farmers into the financial markets where they had been previously excluded. The World Bank International Financial Corporation has been one of the main promoters of the product. The bank argues that beyond its potential at reducing farmers risk, IBAI can also enhance farmers’ access to credit and can promote their movement into more modernized forms of agriculture (GPFI and IFC 2011). A study by proponents’ of development as financial inclusion emphasizes the positive effect that IBAI has had in Ghana as seen through increases in consumption of fertilizers, planted acreage, yields and income by insured farmers. They also highlight the shift from subsistence to riskier cash crops by insured farmers as a move in the right direction (Cole et al., 2013; Karlan et al., 2014; Cull et al., 2014). The proposed
relation between IBAI and an exacerbation of agricultural modernization is problematized by critics of IBAI.

An emerging part of the literature suggests that IBAI could potentially worsen farmer vulnerability by not only increasing existing risk, but even creating new forms of risks (Johnson, 2013; Isakson, 2015). Isakson explains that the product appears to reduce the risks of agricultural modernization more than it actually reduces farmers’ risks to environmental shock. As explained in the previous section, this string of the literature emphasizes that neoliberal modernization has contributed to the production of farmer vulnerability. As a result, the promotion of further modernization by the product would only increase the production of farmer vulnerability. Furthermore, in perpetuating a process of neoliberal modernization in agriculture the product could also lead to further dismantling of traditional forms of risk management, creating dependence on financial markets (Isakson, 2015). One of the major critiques of the product has been the emergence of basis risk. Basis risk refers to the instances in which the payouts as determined by the weather indices fail to represent the actual risk crop loss faced by farmers. In response to the emergence of basis risk, Johnson criticizes the design of the product arguing that it is actually a weather derivative and not an insurance (2013). His argument is that payments are not based upon actual agricultural performance but instead on an index that is supposedly correlated with agricultural performance. As a result, policyholders are essentially speculating that the index will correlate with what happens in their fields. For this reason, it is in fact a weather derivative that is marketed as insurance (Johnson, 2013). Consequently, Isakson situates IBAI within a dimension of a continuation and exacerbation of a process of financialization of the agricultural food system (Isakson, 2015).
1.4.2 Demand and the Role of the State

Proponents and critics of IBAI appear to emphasize the active role the state must play in the development and promotion of markets and infrastructure for IBAI. The IFC and the G20 highlight the role through which the state must support the insurance (GPFI and IFC 2011). One of the major necessary state supports includes the infrastructural development of weather stations and the maintenance of weather data for the development of the indexes (Varangis et al., 2002). Apart from this, in many cases, the state also has to subsidize the premiums, become the reinsurer for catastrophic risk, and finance research and development in the initial stages (Greatrex et al., 2015). Barnett et al., argue that in low-income countries the markets for the insurance “will not materialize without the coordinated efforts of national governments and donors” (2008, p.1767).

Given the aforementioned roll-back of state support as part of the neoliberal restructuring, authors have critiqued the state dependence of IBAI (Da Costa, 2013; Isakson, 2015). The product can be understood in terms of the literature on roll-out neoliberalism, where the failures of the private sector in occupying the space produced through deregulation of roll-out neoliberalism are addressed by state investment on private sector products that continue to commodify and privatize the agrarian relations (Peck and Tickell, 2002).

Despite the investment and promotion of the products by active states, both proponents and critics have observed that the expected demand by small and marginal farmers for the product has not materialized on a global scale. Enrollment rates for a voluntary uptake of the product have been lower than expected, normally less that 30 % of the target population (Matul et al., 2013). There seem to be divergent opinions in the literature surrounding IBAI regarding the reasons for the lack of demand for the product. In the context of no state subsidy, the low demand has been attributed to the difference between the farmers’ desires and abilities to pay for the product. The
rich farmers will not pay for the product since they have other means of insuring their production through income diversification, their assets and social networks and profit-maximizing portfolios. While the smaller farmers can not afford the premium (Binswager-Mkhize, 2012). Following this, some states instituted subsidies for the product premium to ensure that there is sufficient demand for the IBAI amongst marginal populations. However, proponents of IBAI observed that even when offered for free there was strikingly low demand and uptake of the product (Cull et al., 2014; Matul et al., 2013).

Other authors have attributed the low demand as a lack of trust resulting from farmers’ financial illiteracy. The rationale is that the lack of demand is based on farmers’ inability to understand the workings of the insurance and as a result, they are unable to appreciate its benefits (Da Costa, 2013; Matul et al., 2013). Governments and private companies that have ascribed to such rationale have invested further in the promotion of pedagogical campaigns to increase farmers understanding of financial sector (Da Costa, 2013). Despite a growing literature exploring price and non-price reasons for the low demand of IBAI there is a literature gap given that no studies have documented or analyzed farmers’ perspectives and their conceptualization of the low product demand (Ahuja & Guha-Khasnobis, 2005; Churchill, 2006; Hazell and Skees, 2006; Giné et al., 2008; Sinha and Sagar, 2009; Clarke, 2011; Véron and Majumdar, 201 Cole et al., 2012).
2. Methodology

2.1 Motivation and Approach

It was through the preliminary findings of a previous research questions that I ended up looking at the role of Index Based Agricultural Insurance (IBAI) in Tamil Nadu. The original research question had been developed in partnership with my placement organization. This was done in an effort to have a participatory research approach. I carried this out by holding regular meetings with the technical staff at Centre for Indian Knowledge Systems (CIKS) to ensure that the selection of my research topic would be of mutual interest for the organization and my self. The original research question, which I designed with the organization, looked at the role of newly emerging farmer collective action models and their capacity to restructure the agricultural value chain. At the time, CIKS was in the process of facilitating the establishment and nurturing of a number of Farmer Producer Companies. Farmer Producer Companies is a new collective action model introduced by the Government of India in an effort to correct the deficiencies of farmer cooperatives, such as corruption and unprofitable ventures. The model is based on a hybrid of a cooperative and a private limited company which is completely farmer led. The research was to be approached by conducting semi structured multi-stakeholder interviews with four different Farmer Producer companies, including two of the ones which CIKS had helped establish. After conducting over 20 interviews in two different field locations, I realized that the research question was too broad and that as a result the findings were too scattered. At this point I decided together with my thesis supervisor Ryan Isakson and the staff at CIKS that my research approach would benefit from narrowing the scope and further focusing on a specific aspect of the agricultural value chain.
One of the producer companies that I had visited during the study offered an IBAI product to its shareholder farmers. As part of a previous research assistant job looking at the financialization of agricultural inputs suppliers I had done some preliminary research on the role of emerging micro-insurance products in developing countries and its implications for agricultural commodification and financialization. I was surprised that this specific producer company was taking part on the provisioning of the IBAI since they have a strong mandate focused on the revitalization of traditional agricultural systems. The cooperative, Valanadu Sustainable Agriculture Farmer Producer Company, is comprised of over 3000 farmer shareholders and has a very strong mandate on the revitalization of traditional seeds and practices in agriculture as well as the promotion of organic agriculture. This seemingly paradoxical relationship was the original motivation behind the study of IBAI. It was also interesting that the producer company is located in the Nagapattinam district in Tamil Nadu, which is a region particularly prone to weather risk. After discussion with the organization’s staff and my thesis supervisor I redirected my research question and decided to focus on the role of IBAI products in reshaping the vulnerability of farmers in Tamil Nadu.

In the process of redirecting the research question I organized a meeting with the regional director of the Agricultural Insurance Company of India (AIC) in Chennai in order to get a clear picture of the current state of provisioning of IBAI products in the states in order to create a comprehensive research approach. Two major index insurance products were being provided in the state: Varsha Bima (also known as Rainfall insurance) and a pilot Weather Based Crop Insurance Scheme (WBCI). Even though both products were being provided by the AIC they were receiving different levels of support from the central and state government. It was suggested to me by the regional manager at AIC that a comprehensive study of IBAI required a clear view of the
role of the two products in a variety of field locations. As a result, the research approach consisted of the use of case studies for each of the products being provided. Each of the case studies would be approached through the use of semi-structured multi-stakeholder interviews, with a directed focus on capturing farmers’ perspectives. Table 2.1 presents the various actors involved in the study.

**Table 2.1: Actors involved in Study**

<table>
<thead>
<tr>
<th>Actors involved in study</th>
<th>Role and relevance to study</th>
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</thead>
</table>
| Centre for Indian Knowledge Systems (CIKS) | Location: Based in Chennai  
Role: My co-op placement organization  
Relevance: Directed me to other actors |
| Agricultural Insurance Company of India (AIC) | Location: Based in Chennai  
Role: In charge of implementing both Varsha Bima and the WBCI Insurance at a state level  
Relevance: Interview with the director |
| Kazhi Kadamadai Farmer Federation (KKFF) | Location: Based in Nagapattinam  
Role: Micro-Insurance Agent in charge of implementing Varsha Bima and the WBCI at the local level  
Relevance: Interviews with CEO, with sub-agents and with policy holders |
| Sirkazhu Organic Farmer Federation (SOFA) | Location: Based in Nagapattinam  
Role: Sub-agents of Varsha Bima Product  
Relevance: Interviews with sub-agents and with policy holders |
| PWSD-CARDS | Location: Based in Tirunelveli  
Role: Sub-agents of WBCI Product  
Relevance: Interviews with sub-agents and with policy holders |

2.2 Methods and Rationale

2.2.1 Data Collection

There are some states in India such as Karnataka with a longer history of IBAI than Tamil Nadu. However, the selection of Tamil Nadu as a state was based on convenience. Since the structure of my work at CIKS consisted of recurrent visits to their various field locations throughout the state, I already had access to a network of farming communities at the time I started conducting my interviews. I also had a better relative understanding of the context that I would
have to navigate. It was for these reasons that my research was undertaken in this particular state of India.

The research strategy consisted of two case studies one two different districts of Tamil Nadu and each with a focus on a different IBAI product. The purpose was to document the stories and perspectives of farmers and their experiences with the two major IBAI products available to them. Denscombe (2014) highlights the holistic nature of case studies as they allow for an in-depth focus on relationships and processes. Case studies are also observations of natural settings which minimizes the interference brought in by me as a researcher (Denscombe, 2014). The use of case studies allowed me to have an in-depth understanding of the ways in which the index insurance worked in those specific locations, it also facilitated the use of multi-stakeholder interviews. Hamersley (1999) emphasizes the use of case studies as a research strategy that incentivizes the use of various research methods. However, the use of case studies also brought up a limitation in terms of the credibility of generalizations from research findings (Descombe, 2008).

The research methods used consisted of semi structured multi-stakeholder interviews. Interviews were chosen to uncover farmers’ experiences with the insurance products because of their ability to uncover depths, as opposed to the breadth that statistical data tends to reveal. As explained by Denscombe, a focus on depth rather than breadth is particularly justified in cases where the research focuses on documenting emotions and experiences rather than factual matters (2014). The research focus was not based on a statistical understanding of the development of index insurance, but rather on the ways in which the product and its limitation were being conceptualized by the farming community. I had also used interviews throughout my work with CIKS and thus was already comfortable with the use of translators and the framing of questions. A semi-structured format was chosen to incentivize discussion and allow farmers to bring in
matters that they felt were important (Scheyvens Storey, 2003). However, from the interviews conducted for the original research question I had learnt that unstructured interviews tended to deviate away from the issue at hand. Since the research had a specific focus on the financial product the interviews were structured around themes as a way to ensure the coverage of the various issues surrounding the provisioning of the IBAI product. One of the major limitations encountered during the interviews was that the fluidity of the conversation which I was seeking was in some ways compromised as a result of the language barriers which required me to have a translator.

Since the purpose of the case study was to understand farmers’ experiences with the insurance product in a specific location, this also required interviews with as many actors as possible involved in the sales of the insurance. In seeking to perform a multi-stakeholder approach I soon realized that farmers are also involved in the distribution of the insurance not just as consumers, but also as sub-agents of the product. A multi-stakeholder approach allowed for the collection of perspectives from actors at all levels of the products distribution chain from the director of the AIC to the policyholder. The collection of different perspectives aided the data analysis process as it facilitated comparisons of power structures and miscommunications across the value chain. During the research design process this required the creation of different interview scripts for the various actors. Interview questions were designed through consultations with my thesis supervisor, CIKS technical staff, and some of the farmers. The order in which the multi-stakeholder interviews were done was from the top of the distribution chain to the consumers, with a few exceptions. This was done using snowball sampling which is a particularly useful in locating subjects with specific attributed and characteristics (Yin, 2003). The interviews started with the director of the AIC in Chennai, who directed me to the regional micro insurance agent for each of the regions, who in turn directed me to farmer sub-agents of the product and to the consumers.
Although snowball sampling was useful to cover multiple actors, it also required an additional process of ensuring that not all consumers or sub-agents to whom I was directed were success stories. I also wanted to ensure a balance of positive and negative experiences. I communicated this at the moment of asking for referrals, which turned out to be a useful strategy.

2.2.2 Data Analysis

The analysis process for this research thesis took place at the University of Toronto Scarborough upon my return from India. The methods used consisted of direct transcription of all interview materials. Coding was done with the purpose of identifying common themes and relationships between the various stories captured during the interview process (Denscombe, 2014). The analysis of the transcripts was guided partly by the theoretical framework of the thesis. During the analysis, the purpose was to understand how the farmers’ experiences with the insurance products situated themselves within the cycles of reproduction of relational vulnerability. I arrived at the theoretical framework post data collection process. This proved to be a limiting factor for multiple reasons. Knowing the theoretical framework in advance would have allowed for the crafting of more specific interview questions and scripts. Additionally, giving the scalar dimension of relational vulnerability, knowing the framework in advance would have allowed for a clearer focus on distinctions between large and small scale farmers.

2.3. How it was Conducted

2.3.1 Data Collection

Case studies were chosen both on a basis of suitability and convenience (Densocmbe, 2014). As mentioned in the first section of this chapter, the decision to study index insurance originated from finding that one of the farmer producer companies I had visited earlier was providing the product. After deciding to refocus my research on IBAI and visiting the Agriculture
Insurance Company of India I understood that the producer company I had visited was at the bottom of a chain of agents and sub-agents that had provided the insurance product to farmers in the region. The producer company was also a part of CIKS which made my stay at their premises possible and facilitated the logistical arrangements for the case study. As a result, the first case study consisted of a one-week stay in the Nagapattinam region at the facilities of the producer company that I had already studied for my original research project. This was chosen on the basis of convenience but also on the basis of suitability, since the provision of the product in this region and by this producer company provided an extreme instance for the research (Denscombe 2014).

This was an extreme instance because the Nagapattinam region is relatively more weather risk prone and because the producer company had as a focus on the revitalization of traditional forms of agriculture in the region. Extreme instances are particularly useful for cases in which the researcher is looking for specific factors to be seen in relief. The extreme case in this situation was the study of crop insurance as part of the commodification of agriculture as provided by an organization with the focus on revitalization of traditional agriculture in an area prone to high weather risks.

During the case study in Nagapattinam, I realized that the Valanadu Sustainable Agricultural Producer Company together with the Sirkazhi Organic Farmer Association (SOFA) were acting as sub-agents of the Kazhi Kadamadai Farmer Federation (KKFF) which was the registered micro-insurance agent for the Nagapattinam district. As part of the multi-stake holder approach, I interviewed agents and consumer farmers of all three entities involved. The insurance product being provided in the region was Varsha Bima, the rainfall insurance. More details of the

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4 Denscombe describes “extreme instances” as one of the four grounds on which suitability of a case study can be justified. He describes extreme instances as “A case might be selected on the grounds that, far from being typical, it provides something of a contrast with the norm.” (Denscombe, 2010, p.33)
differences of the various IBAI products are provided in Chapter 3. At the end of Case Study 1, I had conducted a total of 15 Interviews: one with the micro insurance agent for Nagapattinam district, 5 with sub-agents from SOFA and KKFF, and 9 with policyholders of the product. All interviews were recorded, and translation was provided by a friend from Chennai who also helped with the logistical arrangements for the visit.

The second case study took place in Tirunelveli district of Tamil Nadu with PWSD-CARDS, a registered trust that had provided the Weather Based Crop Insurance Scheme (WBCI). I was directed to the organization by the director of KKFF, which was using PWSD-CARDS as sub-agents of the WBCI scheme in the region. My stay at Tirunelveli was three days, and it had to be shorter due to logistical arrangements and the fact that I did not have a previous relationship with the organization. During the study, I stayed at the organization’s facilities and they also provided me with a translator and food. At first, I was worried that the setting could induce a conflict of interest. However, I navigated this limitation by having very clear and open conversations of the perspectives, methods and nature of the research prior to them agreeing to host me. During my time there and while conducting my interviews I did not feel that my research position was getting compromised. This was also possible because I had been personally recommended by both the KKFF director and the director of the AIC. During the second case study, I performed a total of 6 interviews: 1 with the organization’s director, 1 with an agent, and 4 with consumers of the product.

Overall, a total of 22 interviews took place during this research. 21 of them were part of the two case studies that were conducted. From the remaining two, one was the regional director of AIC in Chennai, and the other was with Professor Dr. Thiagu Ranganathan. Professor Ranganathan works are at the Agricultural Economics Research Unit of the Institute of Economic
Growth in New Delhi, with a research focus on the demand for formal and informal risk management products such as insurance. Getting an academic perspective from the Indian context was very useful as a form of triangulating the findings by the farmers.

2.3.2 Data Analysis

I originally started analyzing the data through a grounded theory approach, looking through the transcripts for common themes or stories that I could identify from my interviews. However, given the nature of my research method, I realized that this was not conducive to the type of study I was looking to analyze. My research was rooted in the relationship between the provision of this IBAI and its place within a larger process of agricultural transformation, which had been characterized by the exacerbation of unequal power dynamics and the production and reproduction of dimensions of vulnerability. I had to redirect my analysis method so as to see how the story that farmers were telling related to that wider transformation that I was referring to. I did this by using the data collected to try and tell the story of agricultural transformations. However, in doing so I was worried that through this analysis I would influence the data to try and fit the story I was trying to tell. This required a process of looking at the story being told through different angles and lenses as well as an active process of allowing the story to evolve naturally as it situated itself in the wider context of agricultural transformation. It also implied looking for points, places and people that resisted or demonstrated counter-narratives. The additional focus on spaces of agency within neoliberal governance arose from this process.

2.4. Positionality

Evaluating my positionality was paramount in the process of conducting and analyzing the research data. I identified two major vectors of privilege which had an influence on the type of data and networks that I was able to access as well as an influence in the data provided by
informants. The two vectors identified consisted of my position as an employee of a reputable and respected farmer related NGO such as CIKS, and also as a white-passing male foreigner coming from a North American university. The first vector of privilege was particularly influential in the access that I received during the research design. The possibility to meet with the regional director of the AIC was through direct internal networking within the staff at CIKS. The possibility to interview expert on insurance, professor Ranganathan, was also possible through internal networking from the director of CIKS. The first case study at the Nagapattinam region was also clearly influenced by this vector of privilege. The farmers agreed to meet with me because I was referred by staff at CIKS.

The importance of being associated to CIKS became apparent to me when prior to one of the interviews, a farmer demanded to know how this would benefit him or the farming community. He continued to explain that farmers have become skeptical of NGO’s and researchers. I explained the purpose of my research and my hope that it would incorporate farmers’ voices into a current debate. He continued to explain that CIKS had developed a unique relationship with the farming community and this was the main reason he had agreed to meet with me. Being connected to the organization was also important way for me to navigate the highly hierarchal nature of Indian society. It was common prior to most interviews for farmers to ask where I was coming from, what I was doing in India, and who I was researching for. Mentioning my internship with CIKS, given CIKS reputation in that field location, allowed farmer to understand the type of work I was doing in India. The reputation of CIKS was a major factor in the type of conversations that I was able to carry out with the farmers involved. However, it might have also added a level of bias in the information provided by farmers. The fact that I had come from the central CIKS office in Chennai
office might have given farmers some doubts of the extent to which they could speak openly about a product that was being indirectly supported by CIKS.

The second vector of privilege which consisted of my position as a foreigner and white male also influenced the type of networks that I was able to access. As a male, it was easier for me to have respect from the farmers I interviewed, as well as the organizations I visited. However, I must point out that of the five main organizations I worked with during my case study, three had female directors (CIKS, AIC, SOFA). Given my young age, it was apparent that being a male allowed me to navigate certain spaces more easily. For example, one of my coworkers at CIKS pointed out that the possibility to move around freely in a motorcycle alongside a male translator was something I was only able to do because I was a male. Being a white passing person also influenced the level of access and respect that I received superior to other coworkers my age. This became apparent as I noticed that other members of the organizations which were also my age would treat me the same way they treated their directors. Acknowledging and identifying my positions of privilege was essential during the process of analyzing the data collected.
3. Context: Agricultural Transformation in India

Through the use of a relational political ecology framework and a focus on the production of relational vulnerability, this chapter aims to present the multilayered conditions and logic which led to the rise of IBAI products in the Indian context. The chapter is organized into five sections. The first section looks at the implications of the Indian Green Revolution of the 1960s and the way in which it was unleashed upon a vulnerable agricultural landscape as produced during the British Colonial time. The second section focuses on the production of farmer vulnerability during the period of neoliberal restructuring following the structural adjustment of the 1990s. The third section contextualizes the rise of agricultural insurance in India and the role of this industry following the neoliberal restructuring. The fourth section builds upon the failure of agricultural insurance to cover the risk of marginal farmers to contextualize the World Bank’s promotion of IBAI in India. The last section situates IBAI in India within the idea of development as financial inclusion and explores issues with the demand of the product.

Contextualizing the conditions which led to rise of IBAI in India is crucial in understanding the evidence on farmers’ perceptions and experiences with the product and the resulting implications in the production of new dimensions of vulnerability.

3.1 Modernization of Indian Agriculture

With a 7.5% GDP\(^5\) rise and an estimated 4.6% increase in agricultural GDP in 2014\(^6\), it might seem bewildering that 12,360 agri-related suicides took place during that year in India. In the state of Tamil Nadu alone, 895 agri-related suicides took place that year, making it the fourth highest number of agri-related suicides state in the country (Prabhakar, 2015). The complexities

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\(^5\) Catching the Dragon (2015, February 09). *The Economist*

\(^6\) Information from the Ministry of Agriculture Website
of the paradox of farmer suicides in a time of agricultural growth are rooted in a historical and
dynamic transformation of global and Indian food systems which has disproportionately reshaped
the risk that small and marginal farmers have faced. This has also exacerbated the relational
vulnerability within the agricultural sector. In reference to the proliferation of literature looking to
theorize the paradox of farmer suicide amidst agriculture growth, this section focuses on the work
by Vakulabharanam and Mohanty (Vakulabharanam 2005, Mohanty 2005). Durkheimian theory
suggest that suicides are an effect of individualization and socio-economic isolation for farming
households which occurs in the process of rapid economic growth, a process which Mohanty
documented in the Indian state of Maharashtra (2005). In his study of farmer suicides in Telangana,
Vakulabharanam emphasizes the intertwined processes of agricultural growth and increased
farmer distress as a result of agricultural liberalization of the 1990s (2005). The dynamic reshaping
of farmer vulnerability has manifested itself through historical processes that expose the
exacerbation of unequal power relations and loss of agency from a global to a household level.
This section situates the process of the 1960s Green Revolution within the transformation of the
agricultural sector and the reshaping of relational vulnerability.

Before focusing on the Green Revolution, it is important to acknowledge how British
colonial rule laid out the blueprints for a differentiated transformation of agriculture which took
place during the Green Revolution. In the space of this short section, it is not possible to explain
the different ways and different places in which the agricultural transformation during the colonial
period took place. Yet, for contextual purposes, it is worth mentioning some of the more
commonly identified characteristics. The British transformed agriculture through a series of land
tenures and an expansion of the political-legal system. The transformation increased the cultivation

7 For a more detailed look at the impacts of colonial rule in Indian agriculture look at (Davis, 2001)
of cash crops directly focusing to feed British industries. The British took advantage of the caste system and by exacerbating inequalities within the Indian society, they established a strong caste-based hierarchical agricultural structure (Mohanty, 2005). The formation of the “indigenous bourgeoisie” which worked alongside the “foreign imperialist bourgeoisie” is described by Alavi in his recount of the agricultural transition from a feudal to a capitalist mode of production in India (1957). He explains that the colonial process created a bourgeois state as well as legal and institutional framework at a structural level. Mohanty (2005) describes a paradox where the increase in cultivated area during the colonial period took place alongside an exacerbation of socio-economic differentiation. In fact, during the time of British colonial rule, India experienced multiple famines such as the great famine of 1876-1878 and the Bengal famine 1943. The cultivation of cash crops such as cotton, which are extremely dependent on the monsoon as a form of irrigation, reshaped farmers’ vulnerability during the colonial period (Mohanty, 2005; Davis, 2001; Sen, 1999).

“By virtue of the transformation also of the feudal relations on the land into capitalist relations, the colonial mode of production, which is a capitalist mode was set into motion”

-Alavi, 1957, p.1260

The post colonial period was in many ways defined by the polarization between the landlords, the indigenous bourgeoisie, and the imperialist bourgeoisie that was created during the colonial period. During independence the peasantry was initially mobilized by the national congress with the landlord class as their main opponents, since they sided with the colonial rule. However, as independence came and the congress proposed land reform legislation, the landlord class was quick to shift alliances and ensure an influential role in the drafting of the legislation (Alavi, 1957). The complex relation between the elite landowning class and the small and marginalized peasantry was thus reshaped during colonial and postcolonial times. Colonial
practices created a stratified agricultural system oriented largely for export markets. The Green Revolution was unleashed upon this uneven and vulnerable landscape.

A decade after independence, the Indian state implemented Green Revolution policies. The Green Revolution was a global movement which set forth to modernize agriculture through the introduction of chemicals, fertilizers, pesticides, improved seed varieties, and intensive monocropping techniques (Clapp, 2012). The transformation was marketed as a poverty alleviation solution as it promoted efficient cultivation, thus increasing food production. As a result, the 1970 Nobel Peace Prize was awarded to Norman Borlaug, the father of the movement (Akram Lodhi, 2013). However, the adoption of the new agricultural technologies in India was not a simple or natural process, and it required the political engineering pressured through a number of global and national powerful actors (Clapp, 2012). Gangrade and Chaturvedi (1989) explain that the Indian government was initially skeptical of the promotion of such technologies. It recognized that these technologies may exacerbate social and economic disparities, and result in an over-dependence on fertilizers from the US. The Indian government was not alone in expressing these fears. However, actors such as the Rockefeller Foundation, the Ford Foundation, the US government, the FAO, and the World Bank coordinated efforts to put pressure on these governments to promote rural credit schemes and to invest in the infrastructure necessary to allow farmers to adopt the new technologies (Clapp, 2012).

Under such pressures India adopted eight of the ten points that had been recommended by a group of experts from the US in the formation of the Intensive Agriculture District program, which piloted in various states including Tamil Nadu in 1959 (Gangrade and Chaturvedi, 1989). In 1965, the US took advantage of the severe drought in India as an opportunity to extend the food aid agreement that was originally supposed to be terminated on the condition that India would
commit to a full adoption of Green Revolution technology. Clapp argues that this process cemented the new industrial agricultural model in India (2012). Proponents of the Green Revolution argue that this decreased India’s dependence on US food imports and that it tackled poverty alleviation (Eade and Sweetman, 1999). However, this has been criticized by scientists that argued that the increase in yields was mostly due to increases in the water content of the grains, which did not necessarily add to its nutritional value (Taylor, 2015). The reality is that the Green Revolution resulted in the massive degradation of the agricultural ecosystem affecting the long term livelihoods of many farmers. Some of the environmental consequences include increase pest intensification, mining of soil micronutrients, reductions in nutrient carrying capacity of the soil, build up of salinity and loss of agricultural biodiversity (Singh, 2000; Hill and Dhanda, 2004). In regards to livelihoods in Tamil Nadu the percentage of the population earning less than the cost required for the minimum food line increased from 36.04% in 1961-62 to 48.63% in 1969-1970. In 1971, 56% of cultivators and 87% of agricultural laborers were living below the poverty line (Basu, 2012, p.393).

The technologies brought forth by modernization of the agricultural sector under the Green Revolution transformed the way in which farmers related to their natural environments. This transformation was characterized by the exacerbation of power imbalances between and within actors at the global, national, and household levels. At the global level, the power exerted by agricultural input firms such as DuPont and Monsanto was augmented and secured by US pressures to liberalize agriculture despite their local protectionist policies (Clapp, 2012). At the national level, the polarization from colonial times was exacerbated in that the class disparities between the landless and landowner classes became more entrenched (Gangrade and Chaturvedi 1989).
The Green Revolution was disproportionately promoted and successful for rich farmers who were already exposed to the most favorable climatic conditions (Sharma and Dak, 1989). The reasons for targeting richer areas was because the farmers there were the group that were most likely to be able to acquire the whole package of complementary technology. For example, the products were most strongly promoted and supported with infrastructural development in the already wealthy and fertile region of Punjab (Clapp, 2012). The adoption of the technologies for large scale farmers induced a super profit as the costs of cultivation were cut down but the prices for commodities did not change (Griffin, 1974). Small-scale farmers were forced to get credit at a high interest rate to adopt the technologies, leading to rising rates of debts. Farmers rising debt levels and the need to make repayments also pushed farmers to plant more cash crops such as chilies, sugar cane and cotton and use more of new technologies. This process displaced traditional crops of millets and sorghum which require less water, grow in less fertile soil, offer greater heat resistance and have shorter growing cycles (Taylor, 2015). As such, the success of rich landowners resulted in the marginalization of poor farmers who became more prone to debt and were in some cases gradually pushed away from the land (Freebairn, 1995; Clapp, 2012). The dependence on new inputs provided by large agribusiness industries created a new dimension of vulnerability in the agricultural value chain.

3.2 Neoliberal Restructuring in Agriculture: Dismantling of State Support

Through the imposition of new technologies, the Green Revolution transformed the relationship between farmers and their natural environments, and in the process introduced new actors and forms of dependencies within the agricultural value chain. The previous section presented the ways in which the Green Revolution was imposed upon an uneven and vulnerable agricultural landscape as produced during periods of colonialism and independence. Following the
agricultural restructuring of the Green Revolution, there was a global push for the neoliberal restructuring of Global South economies. The agenda was pushed by a small number of international agencies such as the IMF, the World Bank, and the WTO and backed by the US. The World Bank’s structural adjustment reforms were enacted in India in the early 1990 (Clapp, 2012). The neoliberal restructuring in the Global South was promoted through a discourse on food security and self-sufficiency which would come from the specialization on exports in which they had a comparative advantage (Patnaik, 2011).

For the agricultural sector, the structural adjustment programs entailed the removal of taxations on food exports, the withdrawal of state subsidies for farmers, the privatization of state-run agricultural trading enterprises, the erasure of barriers to food imports, and the promotion of policies that facilitated the investment by private partners into the agricultural firms (Clapp, 2012). The withdrawal of state support was rationalized through the economic notion that the market would be more efficient than the state at providing such services (Ali and Bhaskar, 2011). As such, there was a 40.7% reduction in public investment in agriculture from 1980 to 1992 (Mishra, 1996). This created an immediate vacuum for the risk management coverage of small and marginal farmers, which the private sector was supposed to fill.

The reality is that even proponents of the neoliberal agenda in India acknowledge that the “benefits to developing countries in terms of increasing their exports will only occur after complete elimination of export subsidies and substantial reduction in domestic support in the developed countries” (Ali and Bhaskar, 2011). This added a new dimension of vulnerability to agriculturalists as their livelihoods became dependent on self-adjusting unregulated market prices for food, which were particularly volatile due to the influx of cheap imports in India (Ali and Bhaskar, 2011). The reason that these imports were so cheap was that they came from countries with heavily subsidized
agricultural sectors such as the US. As such, the very countries that were heavily subsidizing their agricultural sectors were the ones at the forefront of instituting a dismantling of state support and a freeing of the Indian market (Clapp, 2012). The liberalization of agriculture was characterized by uneven trade rules which benefited western economies such as the US who are still able to greatly support their agricultural sector (Clapp, 2012). Unequal power relations at a global level during the process of neoliberal restructuring again reshaped the way that farmers related to their lived environments and in the process, instituted new dimensions of vulnerability to the agricultural class. It advanced farmers’ integration into exchange and accumulation systems, created economic concentration at the top levels of the agricultural value chain, and entrenched farmers’ loss of agency by limiting their ability to decide what they produced and how they produced it (Taylor, 2015). Consequently, authors argued that the marginalization produced through neoliberal restructuring in India is directly related to rising rates of suicides (Mohanty, 2013; Vakulabharanam, 2005).

At a national level, the production and reproduction of dimensions of vulnerability were manifested in different ways through a relational lens that further polarized the agricultural scene in the country. Ali (2011) explain how the process of neoliberal globalization only promotes the interests of those who have access to better communication systems and technology. For this reason, many of the rural poor in India who do not have this access have been amongst the most affected by the withdrawal of state support.

The vulnerability resulting from the unequal access to Green Revolution technologies was exacerbated by neoliberal restructuring. The liberalization pushed farmers to produce more cash crops such as cotton instead of producing grains. The withdrawal of state support for supporting the acquisition of new technologies incurred higher level of debts for farmers who had become
dependent on the technologies. The increase in production as a result of the increase yield brought forth by the technologies also pushed the prices for farmer output down. Small farmers responded by acquiring more technologies in an attempt to lower their cost and increase their profit, however in the long run this continued to decrease the prices for agricultural outputs a phenomenon known as the “price cost squeeze” (Vakulabharanam, 2005). By 2001 the use of hybrid seed varieties (HYV seeds) was 72 percent for marginal farmers (<1 ha) 58 percent for small size farmers (1-2 ha) and less than 50 percent for large size farmers (>4ha) (Chand, Prasanna, and Singh, 2011). The decreasing food prices and the reduction of state support was also accompanied by increasing input prices, adding increasing debt to the growing list of farmer risks (Ali and Bhaskar, 2011). Overall, richer farmers have a greater economic capacity to adjust to changing market trends while small and marginal holders are often caught up in the highly volatile market. A study by Garikipati and Pfaffenzeller (2010) found that there is also a gender component to the distribution of risk and marginalization produced by the liberalization of the Indian economy. The authors found that the economic reforms of the 1990s have resulted in further marginalization of rural women in India, arguably one of the most marginalized groups of people in Indian society.

The modernization and liberalization of the agricultural field has created a number of paradoxes for the farming community - the increasing agricultural productivity has occurred alongside increasingly poor access to nutritional food by the most marginal populations (Taylor, 2015). According to the National Sample Survey Reports on Nutritional Intake, the average Indian family consumed 110 kilograms less grain per year in 2005 than in 1991. However, there was a sharp increase in intake by a wealthy minority within this decline. This means that there were
staggering decreases in grain intake for the majority of the population. Patnaik (2008) explains how this paradox is rooted in the neoliberal restructuring of the 1990s which promoted an agricultural focus on exports and severely decreased the levels of food grain production, as seen in Figure 3.1. She argues that the objective of promotion of free trade by the World Bank, IMF, and WTO was to bring about an intensification of the international division of labour in agriculture, characterized by the production of relatively exotic requirements for the international consumption by populations in Northern Economies (2008).

The decrease in access to nutritional food by marginalized populations is also related to the movement of farmers out of agriculture as a result of the increasing levels of debt caused by the exposure to new technologies and the reliance on volatile unregulated market prices. This phenomenon is known as the de-agrarianisation of rural spaces (Akram Lodhi, 2013). Following the structural adjustment of the 1990s, around 3.09 million people left agriculture between 1994 and 2000. This was double the number from the previous decade. During this period, farms also appeared to become poorer and smaller as the number of smallholdings (≤2 hectares) increased.

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Figure 3.1 Per capita food grains output and availability in India (three-year average Centered on Specific Years)

![Graph showing per capita food grains output and availability in India](image)

**Note**: Output is Net Output = 87.5 percent of Gross Output, 12.5 percent assumed to be seed, feed, and wastage. Availability = Net Output + Net Imports − Net Addition to Public Stocks. This is the official definition. Both variables divided by total population for per capita values. Chart updated to 2004–05 from Utsa Patnaik, “Neoliberalism and Rural Poverty in India,” *Economic and Political Weekly*, July 28–August 3, 2007.

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8 National Sample Survey Organization (NSSO), India, Report No. 405, *Nutritional Intake in India, 1993–94*, and No. 513 for 2004–05,
while the number of larger farms (>2 hectares) decreased (Gupta, 2009). McMicheal (2004) forecasted that the inability of the labour market to absorb such high volumes of displaced farmers would result in a process of “slumification” as seen through high levels unemployment. These phenomena illustrate the role of unequal power dynamics that have influenced the various processes of agricultural transformation presented throughout this chapter.

As seen from these sections, it is these unequal power structures between and within actors that have introduced new dimensions of vulnerability to the farming community. The transformation has been and continues to be very dynamic, constantly changing the way in which farmers in India relate to their environments. Quantifying the overall effects of vulnerability would be counterintuitive to the multidimensional nature of its production. However, the documented rising prices of inputs, decreasing access to nutritional foods, increasing levels of farmer debt, increasing volatility and reduction of agricultural output prices, increasing extraction of surpluses for export purposes, increasing losses in farmer agency, as well as the move away from food sovereignty are all direct and overlapping dimensions of the production of vulnerability throughout the agricultural transformation of the colonial period, the Green Revolution and the subsequent process of neoliberal restructuring.

3.3 Rise of Insurance in India and Failure to Meet Small Farmer Needs

The logic underlying the dismantling of state support as promoted by the liberalization of Indian agriculture was that the private sector would be more efficient at providing the services that the state used to provide. Historically, the state had played an essential role in mitigating farmer risk. Since 1843, there had been evidence of government involvement in the distribution of grain, free kitchens, remissions of revenue and other taxes, payment of advances, irrigation projects and other forms of disaster relief efforts for the agricultural sector (Rustagi, 1988). Farmers also
developed and relied on systems of risk management through their agro-ecological practices such as the selection of appropriate crops, multi-cropping systems, and extended diversities of seed varieties, as well as through the evolution of various rural institutions such as rural money lending, sharecropping, and extended family systems (Rustagi, 1988). Even commercially farmers had developed “moral economy” arrangements with informal buyers and distributors (Cohen, 2013). Under the discourse of increased productivity, the aggressive imposition of new technologies during the processes of the Green Revolution directly attacked biodiversity in the cropping cycle. This consequently threatened the existence of many of the aforementioned traditional agro-ecological practices which had been part of farmers’ risk management. In the previous section there was a mention of the loss of traditional varieties of millet and sorghum crops that are highly adaptable to volatile climatic conditions (Taylor, 2015). Furthermore, under neoliberal restructuring, the institution of market relations contributed to an unravelling of alternative communal risk-sharing arrangements undermining farmer security. The rise of neoliberal governance which points responsibility inward to the individual meant that farmers were responsible for managing their own risks (Isakson, 2015).

Agricultural insurance was one of the channels through which the private sector was expected to fill the vacuum left from the dismantling of state support during the period of neoliberal restructuring in the 1990s (Mishra, 1996). However, the agricultural insurance sector had its origins in India prior to this period - it was found that some committees in the government had been in discussion regarding the promotion of agricultural insurance schemes since independence. In fact, it was the for-profit Gujarat State Fertilizer Company that pioneered crop insurance. As part of the fertilizers companies’ promotional strategy, they provided a package of inputs and practices to farmers. However, they realized that there was a reluctance to adopt the new
technologies due to the risk of natural hazards. As a result, the company decided to bundle the package with a crop insurance in order to mitigate the risks that these farmers faced (Mishra, 1996). It is important to note that the origins of crop insurance in India are tied with efforts of modernizing the farming sector. As more fertilizer companies started providing the product, the government decided that the General Insurance Corporation of India would implement such schemes on a trial basis from 1973-1976. All of the schemes resulted in financial losses and were thus considered failures (Mishra, 2010). Rustagi explains how the use of an individual farmer approach\(^9\) for the calculation of yields in agricultural insurance has mostly failed due to problems of moral hazard and adverse selection (1988). Moral hazard refers to the phenomenon where policyholders exhibit riskier behaviours because they know that they are protected against this risk as the insurer would incur the costs. In the agricultural insurance sector, adverse selection refers to the demand of an insurance product by a disproportionate amount of risk prone farmers. The issue with adverse selection is that the high demand by risk-prone (small scale) farmers raises the premiums for the insurance which ultimately excludes poorer farmers as they are unable to afford the product. Adverse selection is prevalent in sectors with problems of asymmetric information such as the agricultural insurance sector.

In 1979, the government launched the Pilot Crop Insurance Scheme which looked to lessen the problems with adverse selection and moral hazard through the use of a homogenous area approach\(^10\). The crop insurance was sold to loan receiving farmers on a voluntary basis. The process of selling it through loans immediately excluded many small and marginal farmers who

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\(^9\) Individual approach: a farmer is compensated whenever his yield is less than the guaranteed yield. Premiums and indemnities are estimated using area yields and are adjusted using the actual crop yields of the individual farmer (Rustagi, 1988)

\(^10\) Homogeneous area approach: both indemnities and premiums are estimated on the basis of area yields. All farmers on the area as indemnified irrespective of their actual yield if the area yield is less than the guaranteed yield (Rustagi, 1988)
had no access to loans due to poor access to institutional credit (Raju and Chand, 2009). The scheme was then followed by the Comprehensive Crop Insurance Scheme in 1985, which also used an area approach. However, adoption of the scheme was made mandatory for all loanee farmers. The scheme faced many criticisms due to the fact that it was not financially viable in that it only covered loanee farmers, and there were problems with the assessment of yields and coverage of a limited number of crops (Jain, 2004). What this shows is that from its inception, the promotion of agricultural insurance in India has had a number of problematic issues such as the lack of ability to cover the risks faced by the most marginal farmers, and the close relations that it has had with actors that are pushing for the modernization of agricultural practices. The main irony is that the drawbacks of agricultural insurance inefficiency were apparent and studied even before the liberalization of the Indian economy which forcefully transferred risk management to the private sector. This questions the efficiency discourse under which governments were pressure to liberalize their economies. Efficient for who? As Jain explained, the private sector has and will most likely never be interested in participating in agricultural insurance because profits in this line of insurance are just not promising (2004). However, entities such as the World Bank, which were at the forefront of economic restructuring in the 1990s in India, have also become strong proponents of government intervention in the agricultural insurance sector through the support of the development of public-private partnerships with insurance companies (Mahul and Stutley, 2010).

In the book The Government Support to Agricultural Insurance, the World Bank claims that governments need “to help farmers complement their risk management activities” because “no private reinsurer… has the capacity to cover such a large liability” (2010, p.3). The justification for government intervention directly contradicts the argument for the neoliberal restructuring of
agriculture of 1990s which stated that the government was inefficient in covering the risks that farmers faced (Da Costa, 2013). The World Bank’s book (2010) also emphasized the ways in which agricultural insurance is a catalyst for agricultural modernization as it gives farmers increasing access to credit which facilitates the adoption of higher yielding activities. As seen in this section, the promotion of agricultural insurance, much like the modernization and liberalization of agriculture, has been characterized by the unequal production and distribution of risks. The long history of failure of the agricultural insurance sector to serve the needs of small and marginal farmers has been exacerbated by the dismantling of state support as a result of the neoliberal restructuring. This dimension of vulnerability is further exacerbated by the role of liberalization and modernization in disposing farmers of the agro-ecological practices and traditional “moral economy” arrangements essential for their risk management. The neo-institutional and post Washington census perspective through which the World Bank and the WTO have justified state support for the insurance sector is representative of the roll-out of neoliberalization. In this process the provision of security for powerful actors such as the insurance companies and large farmers reflects a new dimensions of vulnerability for the more marginal small holders.

In 1999, a decade after the structural adjustment program was instituted, the government of India introduced a costly National Agriculture Insurance Scheme (NAIS). It worked through an area approach (a type of index) for widespread calamities and an individual area approach for localized calamities. The state plays an essential rule in subsidizing premiums and claims for small holders (Raju and Chand, 2011). Despite what appears to be an effort to address small holders’ risk management, the introduction of small farmers to the insurance sector needs to be unpacked and situated within the agenda of development as financial inclusion.
3.4 World Bank and the Weather Index Based Agricultural Insurance

The World Bank promoted the emergence of index based insurance in the 1990s as a technocratic solution that gave a new sense of hope to the failed agricultural insurance sector in low and middle income countries (Mahul and Stutley, 2010). This new form of insurance was set to dissuade the inefficiencies of the individual approach by using indices to determine the indemnity provided. This was supposed to target the problems of adverse selection and moral hazard (Raju & Chand, 2010). As such, the area-based approach under the National Agricultural Insurance Scheme (NAIS) was the first attempt at using this index form of insurance. With about 20 million farmers involved and a liability of $7 billion, it became the largest crop insurance in the world. The area approach uses crop cutting experiments\textsuperscript{11} to determine area yield indices for the indemnity payment schedule. The World Bank had been at the forefront of providing the government of India with technical assistance in the growth and development of the scheme (Mahul and Stutley, 2010). As with previous schemes, NAIS has also been criticized due to its non-financial viability and the continued problems with adverse selection and moral hazard.

Despite such drawbacks, the World Bank and other global institutions have continued to pressure governments to continue implementing these schemes with the development of stronger public-private partnerships in the agricultural insurance sector. These pressures can be seen through the active role of state support to the insurance companies in their provision of services to farmers. It can also be seen in the efforts to selectively forge partnership with local NGOs and Self Help Groups in the provision of insurance services. In 2005, the IRDA formally changed its legislature to allow NGOs and SHGs to partner with insurance companies, bypassing the Indian

\textsuperscript{11} Crop-cutting experiments: Sampling process by which crop yields are statistically estimated in each insurance unit.
Insurance Act which required a 22 million capital for insurance provider (Da Costa, 2005). These strategic partnerships to promote the profitability of the product are further unpacked in the analysis section of this study. The Weather Based Crop Insurance which the World Bank has promoted in countries such as Ethiopia, Burkina Faso, Senegal, Indonesia, and Jamaica uses weather based indices to determine indemnity payments (Mahul and Stutley, 2010). This weather index form of insurance has been marketed as the ultimate solution to the institutional failures of previous schemes by including poor and marginal farmers into the agricultural insurance sector (Isakson, 2015). Appendix 1 shows the comparison between yield-based and weather-based insurance as shown by Raju and Chand (2009). The comparisons in the table suggest that weather insurance has relatively lower and flexible premiums, smaller administrative setup cost, an almost complete control of moral hazard and adverse selection, and a moderate and affordable transaction cost as compared to yield based used in the NAIS (Raju and Chand 2009).

The weather index insurance was originally piloted through the private sector in 2003. Some of the players involved included ICIC Lombard, the Social Initiative Group and the World Bank. This pilot policy was linked to an agricultural loan provided by the BASIX Group, a brand name for a group of companies with the general mandate of livelihood promotion (Raju and Chand, 2009). In 2004, the government owned Agricultural Insurance Company of India (AIC) started providing a rainfall insurance by the name of Varsha Bima. Varsha Bima covered three different options - seasonal rainfall insurance, rainfall distribution insurance, and sowing failure\(^\text{12}\) - yet it had no central government support for subsidies of premiums. In 2007, the Agricultural Insurance of India, with assistance from the World Bank, introduced a central government scheme called the Weather Based Crop Insurance Scheme (WBCI) which covers rainfall deficiency, excess rainfall,

\(^{12}\) Look at appendix 3 for a breakdown of Varsha Bima coverage
and low temperatures (Mahul & Stutley, 2010). Although Varsha Bima and WBCI are both provided through the AIC, their main difference is that the latter covers more than just rainfall, and that it is a central government scheme that entails subsidies of premiums, reinsurer of last resort\textsuperscript{13}, and is tied to government loans.

The reality is that although the product decreases the risk faced by the insurance companies in terms of adverse selection and moral hazard, it introduces a new form of risk for the farming community known as basis risk. Basis risk refers to the instances where the index fails to predict the actual weather risk faced by farmers, and as a result, a farmer that should have received an indemnity payment based on the crop loss the he/she faced does not get one. What this implies is that weather insurance fixes the risks and reduces costs faced by insurance companies by adding a new dimension of vulnerability that is borne by policyholders. In terms of the production of relational vulnerability, this is a clear representation of how in the transformation of agrarian relations, the increase of security for some actors (the insurance company in this case) signifies the exacerbation of vulnerability of others (the small scale farmers). In speaking about the reproduction of vulnerability, a number of academics have questioned where the product is actually situated within the debate of agricultural transformation (Isakson, 2015; Johnson, 2013). Isakson situates the product within the wider process of financialization and commodification of agrarian relations (2015). Johnson explains how the product is a weather derivative and not an insurance, as farmers are made to speculate whether the index will correlate with actual agricultural performance (2013).

\textsuperscript{13}Reinsurer of Last resort: Central bank of a country that has the authority and financial resources to act as the ultimate source of credit
Such criticisms have raised important research questions. Given IBAI role within the neoliberal modernization of agriculture, what are its implications with regard to the exacerbation and production of dimensions of vulnerability for smallholders? What are the products implications for the continued process of agricultural modernization and financialization? And how does the product affect traditional forms of risk management, whether it be practices or informal arrangements? (Isakson, 2015).

3.5 Development as Financial Inclusion and Problems with Demand of IBAI

Proponents of the role of weather based insurance in the agricultural sector have rooted their arguments around the rhetoric of development as financial inclusion. Collier and Seeks (2008) championed the product in its ability to include marginal farmers into the financial markets where they had been previously excluded. The agenda of development as financial inclusion is rooted in the failure of neoliberal modernization to fulfill its promise of a positive correlation between financial inclusion and neoliberal development (Sarma and Pais, 2010). In supposedly trying to rectify the exclusion created by the neoliberalism, the proponents of the development as financial inclusion agenda have been criticized for exacerbating inequalities and serving the interests of the private capitalist (Roy, 2010). From such a perspective, the product could be understood to be part of the roll-out neoliberalism which is looking to entrench neoliberal ideology following the roll-back of state protections (Peck and Tickell, 2002).

Despite efforts to promote financial inclusion by the World Bank and the government of India, the success of weather based insurance has yet to be seen. Subsidies by the state for the premiums account for 60 to 75% for the weather insurance (Greatrex et al., 2015). It is estimated that before the product was made mandatory for loanee farmers, only 6 to 16% of the target population participated in the product (Matul et al., 2013). The phenomena of low levels of demand
for the product by farmers has occurred at a global scale. Matul points out that it has been normally less than 30% of the target population (Matul et al., 2013). Da Costa claims that she found “evidence of the paradoxical reality that micro-insurance is being vociferously promoted despite the manifest absence of demand for it” in India (2013, p.846). The vociferous promotion has been justified because the low demand continues to be interpreted as a result of a lack of familiarity with the insurance products by the marginal populations (Gaurav et al. 2011). Such beliefs have translated into policy reforms of financial literacy for the poor. For example, the Indian government has mainstreamed financial literacy programs for curriculums in schools. They have justified such reforms as a way to incentivize inclusion of rural poor into complex financial products that will guarantee their security in risky situations (Sikarwar, 2011). Authors such as Da Costa are skeptical of the industry behind financial literacy campaigns and who the actual beneficiaries will be (2013).

Da Costa points out a gap in academia as she emphasizes the importance of looking at ways in which lack of demand for the product might be a response to problems with the nature of financial products themselves or with the product design. Despite prolific studies looking at the lack of demand for weather insurance, there is a gap in such literature with regard to farmers’ perspectives and understanding of the politics involved in the promotion of such a product. The following chapters presents the findings of interviews undertaken with farmers who have experience with both Varsha Bima and Weather Based Crop Insurance products. It sets to situate their perspective within a wider scope on the reshaping of relational vulnerability and through the dynamic transformation of the agricultural sector.
4. Case Studies: Varsha Bima & Weather Based Crop Insurance Scheme

With the purpose of contextualizing the data collected this chapter looks to provide an overview of agricultural insurance schemes in Tamil Nadu following the neoliberal restructuring of the 1990s as well as the multiple actors involved in the supply chain of the IBAI products. As mentioned in the methodology, the research was divided between two case studies; one for each of the main weather index insurance products provided in Tamil Nadu. The case studies were conducted on different districts of the state of Tamil Nadu, Nagapattinam for Varsha Bima and Tirunelveli for Weather Based Crop Insurance Scheme (WBCI). This chapter also provides an overview of the structures and actors involved in the supply chain of each of the products. The section is built upon interviews performed with actors at the higher levels of the insurance supply chain. Most specifically it draws from three interviews; one with the Micro-Insurance Agent of the KKFF at the state level, one with the regional director for the Tamil Nadu branch at the Agricultural Insurance Company of India, one with Professor Dr. Thiagu Ranganathan.

The chapter consist of three sections. The first section provides and overview of the various insurance schemes provided in Tamil Nadu since 1990s. The second section goes into detail of the supply chain for Varsha Bima as provided in the Nagapattinam region. The third section goes into detail of the supply chain of WBCI as provided in the Tirunelveli district. This chapter lays down the context necessary for Chapters’ 5 evidence and analysis regarding farmers’ perspective of IBAI and the resulting implications. The following table summarizes the insurance schemes and supply chain actors which will be discussed throughout the chapter. Through out the chapter interviews excerpts are followed by a (#). The number inside these brackets refers corresponds to a number in Appendix 4, which provides details of each interview.

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14 Dr Ranganthan has 5 years experience in researching agricultural risk management and weather risk
<table>
<thead>
<tr>
<th>Organizations</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Agriculture Insurance Company of India Limited (AIC)** | Limited Company | • **Location:** Chennai  
• **Role with IBAI:** Implements both national insurance (central government) schemes and independent private schemes  
• Private company but under administrative control of ministry of finance and supervision by ministry of agriculture  
• For profit structure |
| **Kazhi Kadamadai Farmers Federation (KKFF)** | Farmer Federation | • **Location:** Nagapattinam  
• **Role with IBAI:** In charge of supplying Varsha Bima and WBCI in the state of Tamil Nadu  
• Originally founded by foreign NGO: In 2009 acquired Micro Insurance Agent license making them in charge of providing insurance products to farmer and allowing to get a commission from the premiums |
| **Sirkazhi Organic Farmers Association (SOFA)** | Farmer Association | • **Location:** Nagapattinam  
• **Role with IBAI:** involved in the provision of Varsha Bima as sub-agents  
• Promoted by CIKS but operates independently now |
| **PWSD-CARDS** | Trust/NGO | • **Location:** Tirunelveli  
• **Role with IBAI:** Involved in the provision of WBCI as sub-agents |
| **Dhan Foundation** | Trust/NGO | • **Role with IBAI:** Provided a number of weather index crop insurance schemes which failed due to financial viability.  
• No direct involvement with this study |
| **Insurance Regulatory and Development Authority of India (IRDA)** | Autonomous apex statutory body | • **Role with IBAI:** In charge of regulating and developing the insurance industry in India |
| **Insurance Products** | | |
| **National Agriculture Crop Insurance Scheme (NAIS)** | National Scheme | • **Approach:** Uses an area based index approach calculated through crop cutting experiments.  
• Introduced in 1999Tied to agricultural loans |
| **Modified National Agriculture Insurance Scheme (MNAIS)** | National Scheme | • **Approach:** Modification of the NAIS incorporating the option of using weather based crop insurance schemes to supplement the use of area approach in NAIS |
| **Varsha Bima** | Private Product | • **Approach:** Use of weather (rainfall) indices  
• Implemented as an Independent product of the AIC.  
• Receives no subsidies by government.  
• Not tied to loans |
| **Weather Based Crop Insurance Scheme (WBCI)** | National Scheme | • **Approach:** Use of weather indices  
• National insurance scheme implemented through infrastructure of AIC.  
• Tied to agricultural loans but also sold to non loanee farmers in voluntary basis  
• Receives government in form of: subsidy for premiums, liability and reinsurer of last resort. Other private insurance companies can also provide the scheme |
4.1 Insurance Schemes in Tamil Nadu since 1990s

The National Agriculture Insurance Scheme (NAIS), which was introduced in 1999 and is still active, was the country's original and index based insurance. The index worked through and area approach and through the use of crop cutting experiments. The crop cutting experiments were used to calculate yield loss which could be compared to the index yield loss and used to determine indemnity payouts. Tying the product with loans has increased the uptake, but it has also created a problem of misinformation by farmers who are not even aware that they are purchasing the product (22). The schemes were being provided by the Agricultural Insurance Company of India Limited (21). The AIC was incorporated in 2002 and with over 20 million beneficiaries it has become the largest crop insurance company in the world (21). Although technically under the private sector, the company is under the administrative control of the ministry of finance and the operational supervision of the ministry of agriculture. Despite the role by the government the company still operates under a for profit scheme. Due to this nature, the company has the capacity of implementing both national schemes or independent crop insurance products. The WBCI and Varsha Bima are thus examples of the different products that the company has implemented.

WBCI is a central government scheme, it is tied to government loans, the premiums are subsidized by both the state and national government, the government covers the liability and becomes the reinsurer of last resort (21). Private players (insurance companies) were allowed to participate in the distribution of this product, something that was not a part of the NAIS scheme. Varsha Bima is an independent product designed by the AIC and approved by the IRDA. Since it is not part of the central government schemes it does not receive any support by them (21). Both products are dependent on the availability of precise and real time weather data. During my interview at the AIC, it was mentioned that Tamil Nadu has 276 weather stations. However not all
of them are properly maintained (21). Professor Ranganathan emphasized how the lack of historical weather data complicated the design of the product and the indices (22). Alongside this schemes the AIC had also launched a Modified National Agriculture Insurance Scheme (MNAIS). The MNAIS introduced weather indexes to the already existent area approach of the NAIS.

To summarize, this section has presented three national insurance schemes (NAIS, WBCI, MNAIS) and one independent insurance product (Varsha Bima). Although all these products use indices only Varsha Bima, WBCI and MNAIS use weather based indices. All of the national insurance schemes are tied to agricultural loans. The way in which the tying works is that at the begging of each seasonal year the state government is in charge of notifying which crops and which areas (within the state) they will tie to which scheme. At the time of conducting the interviews MNAIS, Varsha Bima, and the WBCI were not being provided in the state. This was because earlier that year the state government had decided to only notify crops under NAIS (21).

In Tamil Nadu, there have also been other weather index products launched by financial institutions and organizations such as the Dhan Foundation. However, most of such efforts came with limited success as a result of financial viability (21).

4.2 Case Study 1: Varsha Bima the Rainfall Insurance in Nagapattinam District

The case study for Varsha Bima took place in the Nagapattinam District of Tamil Nadu. Farmer sub-agents, as well as farmer policy-holders of the product, were interviewed during the week-long case study. The Nagapattinam district has a distinct history of agricultural risk due to its proximity to the coast. The 2004 Tsunami not only claimed the lives of 6064 farmers in the district it also exacerbated the agricultural risk faced by farmers in the region (Karan, 2011). In the village of Vedaranyam, the high levels of salinity in the fields which where left behind from the retrieving tsunami waves had dire consequences on the agricultural landscape. Farmers in the
village soon realized that the hybrid paddy varieties and the chemical inputs that they had become dependent on, were not able adapt to growing levels of salt. The situation forced farmers to come together and to start revitalizing the use of organic practices and traditional paddy varieties (21). This scenario is representative of the way in which farmers in the state of Nagapattinam have had to adapt to increasing levels of natural risk coupled with the historical production of vulnerability as a result of the aforementioned Indian agricultural transformation since independence.

The rise of weather-based insurance in the district is also indirectly related to the effects caused by Tsunami. The Kazhi Kadamadai Farmers Federation (KKFF) is the direct link between the AIC at the state level in the provision of Varsha Bima in the district. The CEO of the Federation explains how the awareness of insurance in the region occurred only post-tsunami. It was during this time that a wave of NGO’s and federations started sprawling and promoting various forms of crop insurance as a form of disaster risk management. The KKFF was one of such organizations, originally founded by a foreign NGO, which started recommending and implementing crop insurance programs. They started promoting the NAIS scheme to the associated farmers. In 2008, the federation also started promoting Varsha Bima to its farmers. However, it was not until 2009 that founding from the foreign NGO stopped, and the KKFF decided to acquire a Micro Insurance Agent License allowing them to take a level of commission from the premiums they collected and to become the agency in charge of the insurance in the region. The provision of insurance soon became the most profitable venture for the farmer federation.

Figure 4.1 show the level of enrollments and indemnity payouts received between 2008-2012. The CEO explains that it was due to the low levels of indemnity payouts (decided through weather indices) received in 2010 that the number of farmers in the coming years decreased. The
differences between payouts and enrollment can be seen in the graph from Figure 4.1, this trend will be unpacked in chapter 5.

Figure 4.1: Varsha Bima enrollment and payout in Nagapattinam District
(Information from KKFF 2014 Profile)

<table>
<thead>
<tr>
<th>Year</th>
<th>Districts</th>
<th>No. of Farmers enrolled</th>
<th>Area insured (ha)</th>
<th>Sum assured (Rs Million)</th>
<th>No of farmers benefited</th>
<th>Claims received by farmers (Rs Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>1</td>
<td>40</td>
<td>31.6</td>
<td>0.47</td>
<td>40</td>
<td>0.06</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>1157</td>
<td>1508.0</td>
<td>22.62</td>
<td>1075</td>
<td>4.52</td>
</tr>
<tr>
<td>2010</td>
<td>6</td>
<td>12246</td>
<td>14890.4</td>
<td>223.82</td>
<td>2461</td>
<td>3.44</td>
</tr>
<tr>
<td>2011</td>
<td>3</td>
<td>1038</td>
<td>1419.2</td>
<td>21.29</td>
<td>309</td>
<td>0.84</td>
</tr>
<tr>
<td>2012</td>
<td>1</td>
<td>186</td>
<td>280.5</td>
<td>4.21</td>
<td>168</td>
<td>0.15</td>
</tr>
<tr>
<td>TOTAL</td>
<td>6</td>
<td>14667</td>
<td>18129.7</td>
<td>272.41</td>
<td>4053</td>
<td>9.01</td>
</tr>
</tbody>
</table>

Figure 4.2 shows all of the actors involved in the supply chain of Varsha Bima in the Nagapattinam district. The role of KKFF as micro insurance agents is to create awareness of the insurance product and to collect the premium. The agricultural insurance company works alongside state government officials and agricultural university in the collection of the weather
data, through which they determine the indemnity payments. However, KKFF has trained farmers from various blocks to become sub-agents of the product. Since most of the subagents are farmers themselves, in multiple cases they are consumers of the insurance product as well. Sub-agent farmers did not receive the product at a discounted rate, but they did receive a percentage of the commission from the premiums they collected. In some cases, the KKFF had partnered with other organizations in the region in order to increase the number of sub-agents and farmers covered. SOFA is an organic federation which was originally promoted by CIKS. KKFF did a training program for some of SOFA farmers, so that they could became sub-agents of the product. The commissions received by KKFF are then distributed along the lines of agents and sub-agents.

**Figure 4.2: Actors and responsibilities for Varsha Bima**

<table>
<thead>
<tr>
<th>Global</th>
<th>Varsha Bima: Rainfall Insurance Supply Chain</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>World Bank</td>
</tr>
<tr>
<td>State</td>
<td>AIC India, IRDA</td>
</tr>
<tr>
<td>District</td>
<td>KKFF: Naggapatnam</td>
</tr>
<tr>
<td>Block</td>
<td>SOFA: Zirkhazi, SOFA &amp; KKFF Sub-Agents</td>
</tr>
<tr>
<td></td>
<td>Farmers: Policy Holders</td>
</tr>
</tbody>
</table>

**Actors Responsibilities**

- **World Bank**: Assist with the design of the product
- **AIC**: Implements the Scheme
- **Agriculture University**: Collects the weather data
- **KKFF**: Micro Insurance Agent, create awareness of scheme, collects premiums from sub-agent and gives to AIC, receives commissions.
- **SOFA and KKFF**: Look for farmers from within their organizations to be trained as sub-agent
- **Sub agents**: Creates awareness of product within their community, collects premiums from policy holders and gives to KKFF administrative staff, receives commissions.
- **Policy Holder**: Pays the premium. Speculate whether the Index will correlate with actual agricultural performance to receive indemnity payout.
4.3 Case Study 2: Weather Based Crop Insurance Scheme in Turnulveli District

The WBCI is a central government scheme, which was designed with the assistance of the World Bank. The scheme had been tried on a pilot basis in the state of Tamil Nadu from 2008-2013 (21). At the AIC, it was explained that the reason for the withdrawal of the WBCI had been due to farmer discontent with the product and active pressuring to the state government to go back to the NAIS scheme. However, the central government has plans to wipe out NAIS in the coming years forcing state governments to choose between WBCI or MNAIS, which are both weather index based. This entails that despite pressured by the farmers to go back to NAIS there will be a likely resurgence of weather index insurance in Tamil Nadu (21).

The WBCI was implemented in Tamil Nadu on a pilot basis. Dr. Ranganathan explained that the scheme was implemented despite expected high levels of basis risk due to lack of weather stations and weather data at a national level (22). Officers at the AIC were critical of the implementation of WBCI in Tamil Nadu; they explained that since 8.5 out of the 13 hundred thousand hectares of agricultural land were dependent on canal irrigation the rainfall indices would not be able to represent the risk faced by farmers (21). In spite of, the concerns the product was still launched.

In the provision of the products to loanee farmers both the AIC and other private insurers compromised by mostly banks such as HDFC and ICIC Lombard were involved in the provision (AIC INT). However, during the interview at the AIC, it was explained that the involvement of such private insurers/banks had encountered many problems of fraud in the form of ghost farmers15, some companies were even blacklisted. It was also explained that the only way that such banks were able to break even was due to the subsidies which they received by the

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15 Ghost farmers refers to instances in which insurance companies registered farmers who did not exist
government (21). The provision of the product to non-loanee farmers was carried out through the AIC in partnership with NGO’s such as the KKFF and CARDS.

The farmers interviewed for the WBCI live in the district of Tirunelveli. I was directed to this region by the CEO of the KKFF. Alongside the provisioning of NAIS and Varsha Bima (case study 1), the KKFF had also been providing the pilot for the WBCI. Figure 4.3 shows the number of farmers who took the product and those who received indemnity payouts in 2010 and 2013. The KKFF first implemented the WBCI scheme in 2010 in ten districts of Tamil Nadu. The organization did not provide the insurance in the coming years due to the dissatisfaction by farmers as a result of low levels of indemnity. However, in 2013, they had decided to stop promoting Varsha Bima and so they looked for new locations where to implement the WBCI. That is why in 2013 they implemented the WBCI in the district of Tirunelveli. This was done through the training of sub-agents of a local NGO known as PWSD CARDS.

**Figure 4.3: WBCI enrollment and payout in Tirunelveli District**

*Information from KKFF 2014 Profile*

<table>
<thead>
<tr>
<th>Year</th>
<th>Districts</th>
<th>No. of Farmers enrolled</th>
<th>Area insured (ha)</th>
<th>Sum assured (Rs Million)</th>
<th>No of farmers benefited</th>
<th>Claims received by farmers (Rs Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>4</td>
<td>664</td>
<td>302.10</td>
<td>6.11</td>
<td>208</td>
<td>0.098</td>
</tr>
<tr>
<td>2013</td>
<td>1</td>
<td>59</td>
<td>35.80</td>
<td>0.89</td>
<td>59</td>
<td>0.178</td>
</tr>
<tr>
<td>TOTAL</td>
<td>5</td>
<td>723</td>
<td>337.9</td>
<td>7.00</td>
<td>267</td>
<td>0.276</td>
</tr>
</tbody>
</table>
Figure 4.4 shows all actors involved in the supply chain of WBCI in the Tirunelveli district. As in the first case study, the interviews conducted were with both farmer sub-agents and policy holders of the WBCI. The sub-agents in Tirunelveli district were trained by KKFF staff. The sub-agents were in charge of collecting the premiums and enrolling the farmers. This was then sent to the micro insurance agent at KKFF who sent it to the AIC. The commission from the premiums was also distributed amongst the various sub agents (6). The following chapter presents an analysis of the data collected from the farmer level perspectives.
5. Evidence and Analysis: Farmers’ perspective and the reshaping of vulnerability

This chapter presents and analyses farmers’ perspectives and experiences with IBAI in the context of the agricultural transformation presented in chapter 3. The chapter looks at farmers’ perceptions in regards to the agricultural transformation and its effects on their cropping cycles (5.1), the changes in their risk management (5.2), the extent to which IBAI has covered their risk (5.3), the low levels of demand for IBAI (5.4), and finally spaces for agency and resistance to the dimensions of vulnerability introduced by IBAI (5.5). Throughout the chapter interviews excerpts are followed by a (#). The number inside these brackets refers to a number in Appendix 4, which provides details of each interview.

5.1 Farmers Conceptualization of Agricultural Transformation

Throughout this thesis there has been reference to a drastic global and national transformation of agrarian relations through historical processes such as British colonialism, the Green Revolution, and structural adjustment programs. Such transformations have been characterized by unequal power dynamics amongst various actors across the value chain and the subsequent production of various dimensions of relational vulnerability which have redefined the way in which marginal farmers relate to their natural worlds. This section looks to integrate the voices of farmers into the discussion of the aforementioned agrarian change in India. Understanding farmers’ conceptualizations of changing agrarian landscapes and the implications on their livelihoods was an essential step in understanding their perspectives on IBAI and its position within the agrarian relations.

To this point, a section of every interview with farmer sub-agents and policyholders focused on understanding farmers’ perceptions of what a changing agricultural landscape meant
to them. The questions were structured in a way that allowed them to compare the main risks that they currently faced with that faced by their fore parents (Father or Grandfather generations). This comparison allowed for a conceptualization of the ways in which the changing relations in agriculture has appeared to a farmer. Farmers were also asked to identify the origins of the emerging risks. There was an overwhelming sentiment amongst farmers suggesting that the agricultural risk that they were currently facing was by far greater than the risks that their fore parents used to face. The main risks that farmers currently face include the dependence on new technology, volatile price markets, increasing natural calamities, and a decrease in availability of labor. Each of these risks will be unpacked in the remainder of this section. Overall, farmers seem to be conceptualizing a transition into a system defined by unequal power relations and an increasing dependence on transactions with emerging powerful actors.

What farmers identified as the dependence on new technologies is representative of the pressures resulting from agrarian modernization throughout the Green Revolution and structural adjustment. These are periods which Clapp attributes to the cementing of a new industrial agricultural model in India (2012). In reference to the risk caused by the dependence on new technologies, farmers emphasized the roles played by fertilizers, pesticides, high-yielding short-term seed varieties, and machinery. The major concerns with pesticide were related to the high adaptability capacity of pests. One of the farmers explained that “Last year [he] applied some pesticide and this year the same pesticide [he] applied… but it’s not that powerful to control the pest, so [he] has to go for another one. It was so powerful the pesticide [that] he was not able to spray, so poisonous.” (19). Major concerns with regard to fertilizers were related to the decreasing quality and increasing prices. The increasing price of inputs was a major concern for farmers. Multiple farmers stressed how the increase in input prices had occurred alongside stagnant or
decreasing prices for agricultural commodities. One farmer described the process as: “if there is a tractor the price is set by the company, if we buy fertilizer the cost is fixed by the company, and if we buy some seeds the price is fixed by the company. So everything is fixed by the company. Then we produce our products then we take it to the market and we are not fixing the price, again the market or them are fixing the price” (19). This frustration is representative of the dimension of vulnerability faced by farmers as a result of the unequal power structures which dictate actors’ ability to set prices in liberalized market. This interplay of unequal power relations amongst actors is representative of Taylor’s emphasis on the economic concentration at the top of the value chain resulting from neoliberal restructuring (2015).

In regards to the risk faced by the introduction of agricultural machinery, farmers appear to be identifying a complex cyclical relationship between an emerging dependence on agricultural machinery and a scarcity of labor. A majority of farmers signaled scarcity of labor problems as the main risk they currently face. When asked about the origins of such scarcity, farmers signaled education and agricultural as well as lifestyle modernization as the catalysts for rural-urban migrations of youth in search of better jobs. One farmer explained that “Things change because people want to become more civilized, it is a fashion like that. So their lifestyle is getting changed and no one is coming back.” (18). At first glance, the use of words such as “civilized” and even “prestigious” (5) speak to a modernization notion, which views farming as traditional and backward. Farmers are emphasizing the extent to which the modernization paradigm as introduced through education has led to labor scarcity. However, there are also deeper structural processes with direct implications for farmers’ livelihoods which are shaping farmers’ choices to exit agriculture. Such implications were evident as farmers were are also indirectly referring to the emergence of decreasing returns in the agricultural sector as implications of such modernization
and neoliberal restructurings. The mention of higher salaries outside the agricultural sector as they describe the younger generations’ search for a better life is representative of these decreasing returns. This phenomenon is representative of Taylor’s description of the paradox of modernization as a process leading to the “de-agrarization” of the areas (2015). The complex and cyclical relationship between agricultural machinery and scarcity of labor as conceptualized by farmers is as follows: the introduction of machinery as part of the modernization of agrarian spaces contributed to decreasing returns for farmers and thus a de-agrarization of the rural areas, simultaneously the de-agrarization of the rural areas has resulted in scarcity of labor which reinforces a dependence on agricultural machinery. When asked about the risk created by the agricultural machinery, a farmer responded: “without the agricultural machines we can not cultivate” (5).

Farmers also identified growing environmental risks as seen through exponentially increasing natural calamities. Some of such calamities mentioned by the farmers included water scarcity, increasing pests, tsunamis, sporadic rainfall and changing seasons. When referring to the situation faced by increasing natural calamities, a farmer expressed that it “is as if a person is … tied up and left in the forest. So he can not see, and he can not move; it is a helpless situation” (18). Taylor describes the nature of this phenomena as “a time when climate change is altering the socio-ecological parameters of agricultural production, [where] smallholders are increasingly alienated from knowledge and control over the active production of their lived environments” (Taylor, 2015). The alienation of active control of their agricultural production is seen through the dependence on new technologies. Such systems of dependence, as described in Chapter 3, required the political engineering of the state as pressured by powerful global actors (Clapp 2012).
Figure 5.1 provides a graphical interpretation of farmers’ experiences with increasing risk through processes of agrarian transformation, and the effects that this has had on their cropping cycles. Some of the farmers explained that the increasing risk that they faced has occurred alongside what they viewed as a paradoxical increase in yields alongside a proliferation of dependence on private sector services for the farming sector. It is exactly through the discourse on increasing yields that farmer-cropping cycles have been transformed to a system of dependence on a multiplicity of emerging private actors which entails raising expenditures and debts. In an interview, a farmer alluded to the systems of dependence as he said “the change in agricultural made us more dependent than our fore parents … we have to depend upon tractor for plowing, and harvesting machine for harvest, for everything we have to depend on now days… The total circumstances got changed” (18). Farmers explained that due to the low returns in agriculture caused by volatile agricultural commodity prices, they are unable to cover the increasing expenditures. As a result, they have also become dependent on loans at the beginning of the cropping cycle in order to access all of the new technologies which they have become dependent on (16). As a result of problems with collateral and credit, farmer loans have been tied to agricultural insurance products, forcing yet another link between farmers and a private actor (18). The transformation of cropping cycles in figure 5.1 emphasizes the alienation of farmer control of their production through the emergence of the dependence on external actors. Contrastingly, when describing their fore parents’ cropping cycles, farmers emphasized that animals were used instead of machinery, waste was used to produce their own natural fertilizers and pesticides, and the fields were worked by the entire family.
The following graph is an interpretation of the data collected from the interviews. It provides a farmers’ explanation of the paradox of increasing yield alongside increasing debt as seen through the dependence on interactions with external actors.
5.2 Commodification of Agrarian Risk: Traditional Risk Management vs IBAI

The changes in traditional cropping cycles represent changes in the way in which farmers relate to their natural environments. This has also altered the way in which they can respond to ever increasing natural calamities in the context of climate change. As discussed in Chapter 3, the relationship between farmers and agricultural insurance has added new dimensions of vulnerability and dependence to the farming community (Isakson, 2015). There is a complex relationship between traditional forms of risk management and the new ways in which farmers are dealing with risk. The role of weather index insurance within the larger framework of agricultural transformation might mean that the insurance is contributing to the dismantling of traditional risk management practices, and as a result adding a new layer of vulnerability to marginalized farmers (Isakson, 2015). This section looks to conceptualize farmers’ understanding of the complex relationship between traditional forms of risk management and emerging risk management practices such as the weather based index insurance.

The findings suggest that traditional risk management systems cannot be understood through a linear generalized lens. There is a diversity of arrangements and practices that have evolved through time and have adapted to the contexts and lived environments of the time. Originally, when asked directly about traditional risk management methods, a majority of farmers suggested that there was no such thing. However, by asking about their grandparents’ times, I was able to identify several risk management systems that were entrenched into the agricultural lifestyles of their fore parents. I have divided the identified risk management systems into two categories: the first consists of individual farming practices and systems, and the second of communal informal arrangements, which I refer to as moral economy type of arrangements.
In the interview with the CEO of KKFF he suggested that agricultural risk could be measured by the amount of money which the farmer has to invest into the cropping season (6). Although the definition is simplistic, it helps us understand what the farmer meant when he suggested that traditional cropping cycles, like the one described in the previous section, was in and of itself a form of risk management. He explained that the only things that farmers stood to lose in such cycles were the seeds themselves, since they hadn’t made any expenditures or investments in the cropping cycle. In fact, although many farmers rejected the concept of traditional risk management, they also talked about various traditional cultivation practices and seed varieties which served to reduce risk. A farmer explained how the traditional paddy varieties could grow three times taller than the short term hybrid varieties, making them more resistant to flood (4). Another farmer explained how in traditional cropping systems, farmers could choose what to plant according to the amount of rainfall received. For example, if the rainfall was low, they could plant pulses such as minor millet which could grow in 70 days, as compared to paddy varieties which would take an average of 120 days (16). Taylor explained that the raising levels of debts and the resulting pressure to grow cash-crops through neoliberal modernization, had displaced many of the millet varieties which the farmer was describing (2015). Another farmer mentioned how a system of having farm animals was also essential as it allowed farmers to sell some of the offspring as a way to offset the risk faced by the crop failure (16). Throughout the interviews there was mention of many more traditional knowledge systems which had evolved through time and had helped farmers adapt to emerging risks.

There were also multiple communal informal moral economy types of arrangements which farmers described throughout the interviews. One farmer described a system where his fore parents used to set an amount of money aside, and pool these amounts as a community in case of crop loss
Another farmer described a system where the farmers would help their neighbors in cases of crop failure. They explained that barren land was a good place for pests such as rats to sprawl, and so assisting neighbors who were facing such problems was beneficial to the whole community. The system was set up so that beneficiaries would pay their neighbor back in the following season in the form of seeds (1). There was also mention of various internal loan arrangements through the communities (6). It was clear throughout the interviews that farmers had traditionally used both the community (moral economy arrangements) and their individual knowledge systems (agricultural practices) as a form of managing their exposure to agricultural risk.

In the study of the production and reshaping of vulnerability, it is imperative to understand the extent to which farmers have been dispossessed of such knowledge systems and community arrangements, and what avenues they may access to manage risk now. With this intention in mind, part of the interview questions were directed at conceptualizing farmers’ understanding of changes in their risk management practices. Farmers emphasized the transformation of cropping systems through the introduction of new technologies as a major constraint to their risk management knowledge systems. As described in the previous section the transformation of the cropping system has not only made farmers dependent on a multitude of private actors, but it had also changed their cultivation practices. In doing so, it has neglected many of the traditional knowledge systems (agricultural practices) that farmers had historically used.

One of the farmers that referred to the multiple cropping techniques from traditional cropping systems explained how “they had this and they are lost now” (16). I asked farmers how such traditional cropping systems had disappeared, and one of them answered that “traditional farming systems [are] interdependent but it is not convenient to the modern time” (17). The farmer continued to explained this inconvenience: “When the machinery came in, the need for the bulls
has become reduced very much, because one tractor can do the work of ten bullocks…(consequently) [when] machinery came in and the household animals got reduced” (17). As the farmer rightly points out, traditional knowledge systems are interdependent, the loss of household animals represents the loss of manure (natural fertilizer) as well as the loss of the urine used for natural pesticides. The loss of natural fertilizers and pesticides in turn represents a loss of knowledge on how to grow traditional crop varieties. Simultaneously, in the context of liberalized markets, the use of high yielding hybrid varieties pushes output prices down making traditional varieties uncompetitive. This is why the dismantling of traditional coping mechanisms can not be understood in the form of individual practices but rather in the loss of knowledge systems. The loss of traditional knowledge systems represents a dimension of vulnerability in the face of weather risk. As one of the farmers explained “organic is giving more yield when compared to non organic farms, whatever the calamity [is]” (15). Subsequently, as farmers are pushed to use chemical fertilizers and pesticides they become more vulnerable climatic calamities.

With regard to the dismantling of moral economy community arrangements, farmers explained that there was still some level of basic internal lending between neighbours and close family. However, the more complex systems of informal arrangements have mostly been dismantled. A farmer explained how “[if there is] insurance and if insurance gets claimed, others will not care that much about the other person. If it is a community level monsoon, each one will look after their own” (18). Another farmer explained “Humanism in the [society] is deteriorating, those days people are broad minded and they had helping tendencies and voluntarily they [helped each other], it is reducing” (16). Both of these arguments are evidence to the individualization of risk management as produced by neoliberal restructuring. The rise of neoliberal governance which points responsibility inward to the individual meant that farmers were responsible for managing
their own risks (Isakson, 2015). In relation to such changes, a farmer brought up another example of the ways in which a transformation of agriculture might lead to a loss of risk sharing arrangements. The farmer explained that traditionally there was a relation of rich farmers leasing their land to other farmers, and in the case of crop loss the rich farmers would be in charge of feeding and helping the leasing families. However, the changes in agriculture disrupted that leasing relationship, which also dismantled that form of risk sharing (18).

What became clear throughout the interviews is that in the face of a dismantling of state support and the loss of traditional knowledge systems and moral economy arrangements, there had been an opening for insurance to become a major avenue in the ability of farmers to cope with risk.

The complex relationship between the dismantling of traditional risk management practices and the emerging role of crop insurance make it necessary to understand how farmers conceptualize the ways in which this new avenue of risk management is reshaping their abilities to cope. The history of crop insurance in India in Chapter 3 showed the way in which it has failed to cover the risk of the most marginal farmers since inception and how IBAI insurance was launched as an initiative to help alleviate that problem. The next section looks at the ways in which farmers have identified the capacity of this product in helping them cope with increasing natural risks.

5.3 Basis Risk: Product Design for IBAI

The proposed inclusion of small and marginal farmers into agricultural insurance through the emergence of IBAI makes it important to understand the ways through which the emerging dependence on this product is affecting farmers’ ability to cope with increasing risks. A section of the interviews was directed at understanding farmer conceptualization of the product’s ability to mitigate their risks.
In the case of Varsha Bima there was an overwhelming response by farmers that questioned the products’ abilities to represent the risk that they were actually facing in their farms. For example, some of the farmers expressed their discontent in the following ways: “Their perspective is they are paying some money to secure risk, but in many occasions it has failed” (1), “One year they are getting [payouts] and the next year though they are affected they are not getting [payouts]” (4), “They are not sure whether they get affected they will get the payout or not” (9). As mentioned previously, the inability of the weather indices in Varsha Bima to accurately represent the crop loss faced by farmers is known as basis risk. Johnson critiques the emergence of basis risk in IBAI in explaining that “making security [insurance] accessible to the poor also requires them to bear some of the risks themselves” (2013, p.2667).

It has become clear that farmers were facing the reality of basic risk, but how exactly were they conceptualizing it? I asked farmers why the product was not covering their actual risk. One of the farmers pointed out that “the way [Varsha Bima] is designed is not helping … Logically the policy has to be helping, but it’s not helping”. Another farmer emphasized how the product design and the measuring methods were just not appropriate to his context. He explained that he belonged to a village where the proximity to the seashore created particular climatic conditions which the product design had compromised through the generalization of the weather indices (3). Farmers conceptualized basis risk as a direct result of the product design. Their response represented Johnsons’ critique of IBAI where the pressure of basis risk resulting from the use of weather indices was a compromise which small-scale farmers had to face as they were being included into agricultural insurance (2013).

The farmers had a clear and comprehensive understanding of the main flaws in product design which were affecting the ability of the product to cover their actual risks. Farmers
emphasized two major problems with product design: the production of the indices and the
distribution of areas in which the indices were measured. Farmers explained how the product was
designed in a way so that the index would be calculated by Taluks or blocks, which are large areas.
Farmers expressed two concerns with regards to the use of blocks. Taluks are large areas and so
they generalized the experience faced by farmers. Farmers explained that within the same Taluk
there might be areas that acquire the required rainfall for the index and others that don’t (3).
Another farmer whose land was at a periphery of the Taluk explained that he and his neighbor,
whose land belonged to another Taluk, had received different payouts even though they incurred
the same crop loss (1). The decision to measure indices by Taluks was related to the availability
of weather stations and weather data. However, in doing so, a new form of risk was faced by
farmers who had invested in a premium that might not end up representing the loss that they might
actually face. This explains one of the farmer’s frustration as he emphasized that “It is not logical,
it doesn’t make sense” in reference to the difference of payout between him and his neighbor.

In addition to the distribution of blocks, farmers also expressed frustration at the design of
the index itself. One of the farmers explained that the rigidity of the time frame within which the
amount of rain must fall was not representative of the sporadic nature of rainfall. If rainfall started
falling at the end of the two month measuring periods but continued after that it would not be
calculated into the index (3). This limitation was also brought up by the CEO of KKFF (6). The
CEO of the KKFF mentioned that they had communicated their discontent with the indices to the
AIC (6). However, the failures of the indices to represent the risk faced by farmers might be beyond
the capacity of the AIC. As explained by Nair, “The success and efficiency of the weather
insurance also depend a great deal on establishing accurate correlation between productivity levels
and weather variations. It is extremely complex to estimate the correlation arising out of the
interactive nature of various agricultural inputs. The complexity of variables such as temperature, relative humidity, wind speed, etc., also comes in the way of establishing correct correlation” (2010, p. 21). It is important to highlight that although there was a general understanding of the fact that indices were calculated in the bases of rainfall, many farmers were not completely clear of what the indices actually looked like.

In addition to the basis risk, farmers also experienced problems with exponentially rising prices for premiums and prolonged claim periods. Peterson suggested that in weather index products, premiums are expected to rise alongside climatic risks (2012). One of the farmers explained that the first year he paid 230 Rupees per acre, the second year he paid 630 Rupees per acre, and the third and last year he took the product he paid 750 Rupees per acre, which represents a 328% increase in the span of two years. As farmers become dependent on products like these, volatile premiums represent a new form of risk: one that is exponentially increasing alongside climatic risk. Farmers also expressed concerns with the prolonged amount of time that it took for them to know if they had received a claim or not. One farmer even mentioned that he had to pay next year’s premium without knowing if he had received a claim or not for the year before (8).

At first glance, the response from farmers which had taken the WBCI (second case study) seems to contradict the perspective of those that had taken Varsha Bima. The farmers that had taken the WBCI expressed satisfaction with the product and confusion as to why it had been discontinued. The WBCI had been taken by 59 farmers in the district of Tirnulveli in 2013 and all 59 farmers had received a payout. The insurance had only been sold for one season. When I asked farmers about their satisfaction with the product, they explained that they had experienced what they referred to as a “double benefit”. A farmer explained that double benefit referred to the fact that he had received a payout due to the fact that there was less rainfall that season yet he had not
experienced significant crop loss. The rainfall had been sufficient to be stored in the dam, which had allowed him to grow his crops representing another dimension of basis risk. Although, the “double benefit” meant that the basis risk had helped the farmer in this context, this did not change the fact that the insurance had failed to represent the actual risk which farmers had faced.

The dimensions of basis risk in both the case of Varsha Bima and the WBCI is representative of Johnson’s emphasis that the product is not actually and insurance but rather a weather derivative. The product is a weather derivative because farmers are made to speculate whether the index will correlate with actual agricultural performance, the product offers a possibility for remuneration instead of an indemnification for their loss (Johnson, 2013)

The introduction of IBAI as a poverty alleviation strategy has directly introduced new dimensions of risk to the most marginal farmers. In doing so, this has contributed to the reshaping of farmers’ vulnerability as part of the transformation of the agricultural landscapes. These dimensions of vulnerability are relational in that they also represent the production of securities for powerful actors (insurance companies). As discussed in Chapter 3, the use of indices decreases the levels of moral hazard and adverse selection which represent a threat to the profitability of agricultural insurance products. This production of new dimensions of vulnerability has occurred alongside a global process of agricultural commodification and financialization. Despite all this evidence there is a dominant belief that the failures of the products, as represented by the low levels of demand, are a result of farmers’ financial illiteracy.

5.4 Financial illiteracy? Farmers Response to Low Demand: IBAI as the “village’s lottery”

The previous section illustrated the ways in which farmers have conceptualized the limitations on the product design and implementation of Varsha Bima. The section showed that efforts to decrease adverse selection and moral hazard through the introduction of weather indices
have compromised the capacity of the insurance to represent the actual climatic risk that farmers are facing. Despite the evidence that shows the inability of insurance to cover farmers’ risk, the low level of demands for IBAI products in India has been interpreted as a lack of farmers understanding of financial products. This interpretation refers to a “lack of insurance culture” (Mahul and Stutley, 2010). Some studies have even interpreted the mistrust in the micro-insurance products as a consequence of low literacy and numeracy (Cole et al., 2012, Giné et al., 2008). In India, the government has ascribed to such interpretations and this has led to the rise of an industry of financial educations (Da Costa, 2013). The current President of India and former finance minister said “financial literacy is crucial for financial inclusion” because it will make ordinary citizens into discerning customers of “complex financial products … thereby protecting them during crises such as the recent financial meltdown” (Sikarwar, 2010). Proponents of financial literacy efforts emphasized the idea that the rural poor “need to understand that they may experience a loss and not receive an indemnity” (Barnet and Mahul, 2007, p.9). The logic is that since farmers do not understand the concept of insurance after a year of low indemnity payouts, the demand for the product tends to decrease.

At first glance, the logic in support of financial literacy appears to hold statistical truth. Table 5.1 from KKFF’s 2014 financial report shows a drop from 958% growth to -91% in the demand for Varsha Bima from 2010 to 2011. The severe decrease in growth rates occurred alongside a significant decrease in the percentage of farmers who received payouts in the previous year. Consequently, the data from the KKFF on the provision of Varsha Bima shows that there is a decrease in demand following a decline in payouts as expected through the logic of financial literacy programs. The CEO of the KKFF explained that this phenomenon occurred as a result of the fact that in “farmers’ mentality they have investment” (6). He explained that since they
understand it as an investment, they view the payouts as the returns on their investment (premium). Consequently, a year of bad returns leads to low demands for the investment in the coming year.

**Table 5.1: Changes in Demand for Varsha Bima**

*From: Varsha Bima from KKFF financial report 2014*

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Farmers enrolled</th>
<th>No of farmers benefited</th>
<th>Claims received by farmers (Rs Million)</th>
<th>% Farmers Benefited</th>
<th>% Change in Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>40</td>
<td>40</td>
<td>0.06</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>1157</td>
<td>1075</td>
<td>4.52</td>
<td><strong>92.91270527</strong></td>
<td><strong>2792.5</strong></td>
</tr>
<tr>
<td>2010</td>
<td>12246</td>
<td>2461</td>
<td>3.44</td>
<td><strong>20.09635799</strong></td>
<td><strong>958.4269663</strong></td>
</tr>
<tr>
<td>2011</td>
<td>1038</td>
<td>309</td>
<td>0.84</td>
<td><strong>29.76878613</strong></td>
<td><strong>-91.52376286</strong></td>
</tr>
<tr>
<td>2012</td>
<td>186</td>
<td>168</td>
<td>0.15</td>
<td><strong>90.32258065</strong></td>
<td><strong>-82.08092486</strong></td>
</tr>
</tbody>
</table>

The evidence from the provision of Varsha Bima validates the logic of farmer treatment of IBAI as an investment. The previous section showed farmers’ comprehensive understanding of the limitations of the products design. In this context, the link between the evidence of treatment of IBAI as investments and the subsequent need for promotion of farmer financial literacy needs to be problematized. Whose voice is being silenced and whose interest are being represented in the development of a financial literacy industry? Within the emerging literature looking at issues with demand for IBAI there is an inherent gap looking at farmers’ perspective on the issue. Da Costa has referred to this gap as she emphasized researchers’ failures to explore what is meant by farmers when they say that rainfall insurance is equivalent to “throw(ing) away the money” if it rains (Da Costa, 2013, p.856).

In response to the gap above, this section focuses on presenting farmers’ understanding of the insurance product, as well as their perspectives on issues and limitations of the low product demand. In doing so, it attempts to answer the following question: What do farmers’ perspectives
and understanding of the demand for IBAI tell us about the political economy of the financial education industry and the larger debate on the idea of development as financial inclusion?

In response to the notion that there is a lack of “insurance culture” within the farming community, this first part presents farmers’ understanding of insurance concepts as well as the use of indices. In this section, sub-agent farmers and policy-holder farmers are differentiated. Even though both groups consist of farmers and in a majority of cases, the sub-agents are also policy-holders, the sub-agents did receive some form of formal training on the workings of IBAI, which makes their understanding of insurance unrepresentative. The evidence from this study showed that both sub-agents and policyholders had a clear basic understanding of insurance as a financial product consisting of a premium to be paid beforehand and a payout to be received depending on the event being covered. All farmers also demonstrated an understanding of the use or rainfall indices in a set area as a way to measure the claim.

As demonstrated in the previous section, farmers did not just have an understanding of the product design, but they were also able to be critical of the many limitations that were increasing the basis risk they faced. The detail to which the farmers spoke of the specific indices varied amongst sub-agents and policyholders. As expected, sub-agents gave more detailed descriptions of the workings of the product. However, there was a predominant lack of understanding by both groups of farmers in regards to the way in which the weather data was being collected as well as the levels of rainfall required to receive payouts from the insurance in that year. Although it might not be necessary for farmers to have a complete understanding of the technical details of the product, it is important to point out that there were cases in which farmers described the purposeful confinement of information, which created barriers to their understanding of IBAI. A farmer sub-agent mentioned the case where “one farmer went in person to the rice research station and
enquired about the rainfall, they were not ready to disclose the information. There is no transparency, so in fact, we do not know who is taking the reading, who is monitoring the process, what is the system of operation, in the weather station” (20). There were also various mentions of the lack of transparency concerning the provision of explanations to farmers as to why they may or may not have received their payouts. These findings present a problematic contradiction, in which the implementation of a financial literacy industry for the rural poor has occurred alongside already high documented levels of insurance understanding as well as the lack of information transparency as shown by the study.

Da Costa (2013) further problematizes this paradox by arguing that financial literacy education programs for IBAI entail a dispossession of local knowledge. She explained that in the use of the area-yield based approach of NAIS, farmers were still the experts on local weather conditions and its effects on yield. The role of farmers as experts represented a threat to insurers. In the transition to weather index insurance, the role of the expert was shifted away from the farmer to the scientist in designing weather indices to represent crop loss. Subsequently, the programs to educate farmers on weather index insurance were focused on securing insurance profitability rather than on putting farmers in a position of power where they may influence the realization and implementation of the indices.

A limitation of the findings of this paper is that all of the farmers interviewed had taken up the insurance at some point, and so their understanding of the product could be relatively biased when compared to farmers that had never purchased the product before. However, as one of the farmer sub-agents mentioned, farmers in general “know the concept of insurance, because they are taking insurance for other type of things [i.e., Life insurance] …unless there is a damage they don’t get anything back; they clearly know that”. Most of the farmers interviewed throughout the case
studies had already been taking another form of crop insurance. All of this evidence problematizes the patronizing claim that the farmers’ treatment of this insurance product as an investment is a result of their lack of understanding of a “insurance culture”.

With the purpose of unpacking such claims from farmers’ perspective, a section of the interviews focused on documenting their conceptualization of the insurance product. As presented in the first section of this chapter, the modernization of cropping cycles has made farmers dependent on agricultural loans to cover the cost of their interactions with the multiple external actors that they have been forced to interact with. The loan represents a new dimension of vulnerability to small and marginal farmers. As explained by a farmer policy-holder, the rainfall insurance is adopted with the hope that if the weather fails it will cover the risk represented by the loan (11). The same farmer explained that that the problem in demand “is not related to the farmer[‘s] understanding but rather to the mechanism” under which IBAI has been implemented (11). The answer was a recurrent one when farmers were asked about their perception on the struggles with demand that the product had been facing. This is not surprising given their clear understanding of the problems with the product design and the rise in basis risk. When asked if farmers were aware of the perception that they were treating the product as an investment, a farmer sub-agent responded that “People are aware that the product is an insurance, they know that they are treating as an investment. But what happens is that the design has been so that they have not been getting the payout, when they are supposed to … but you can not say that they are treating as an investment. There is a default in the policy” (4). The sub-agent’s explanation is similar to that of one of the policyholders in that “it is like a lottery only because we don’t know… though we have lost the crop, we don’t know whether we will be benefited or not”. The conscious conceptualization of the product as a lottery by farmers is reflective of Johnson’s critique of the
product as a weather derivative and not an insurance product (2013). This contributes to the process of financialization of the agrarian relations, exacerbating small and marginal farmers’ vulnerability (Isakson, 2015).

In relation to farmers’ understanding of problems with the demand of IBAI, the interviews also looked at the factors that had influenced farmers’ decisions to demand the product in the first place. There were a few scattered mentions of risk diversification or wanting to try out something new. However, a predominant answer by farmers was that the insurance had been demanded mostly because of farmers’ trust in the local organization in charge of the provision. Whether it was CIKS, the KKFF, or PWSD-CARDS, the main factor pushing farmers to demand the product was the long-term relationships that they had developed with the organizations. One of the policyholders told me that Varsha Bima’s premium was five times higher than the other crop insurance he was taking. When I asked him why he had decided to purchase Varsha Bima despite the high premiums, he said he purchased it based purely on the goodwill of his relationship with CIKS and KKFF. In the process of selecting the sub-agents, a key requirement was the selection of farmers with good rapport within their local communities. One of the sub-agents mentioned that “he has not (been) given sufficient knowledge and time to explain to farmers…he used himself and his face [to sell the product], for his face sake [the farmers purchased] the policy” (1).

In 2005, the IRDA formally allowed NGOs and SHGs to partner with insurance companies, bypassing the Indian Insurance Act, which required a $22 million capital from each insurance provider (Da Costa, 2013). The strategy formed part of the universalization of insurance, saving providers the cost of building local infrastructures and creating a system of commissions to incentivize third party suppliers. These findings are significant, in that it represents a marketing strategy which capitalizes on trust relationships, in that “the “local” is valued as social capital [that
builds] trust for insurance products” (Da Costa, 2013). The need for such a strategy is rooted in a long history of agricultural transformations which has produced new dimensions of vulnerability for small and marginal farmers. These transformations have opened spaces for farmers’ mistrust of government and private sector policies and products. The mistrust was a prevalent theme in the interviews, as seen through constant general accusations of corruption and inefficiencies of government schemes designed to help farmers.

In conclusion, farmers’ perspectives have shown that the low levels of demand for IBAI following a year of low indemnity payouts are not representative of a lack of “insurance culture”. Instead, they show that IBAI is in reality weather derivative which fails to represent the agricultural risk faced by farmers as it entrenches the financialization of agrarian relations. Unpacking the rationale for a financial literacy industry elucidated a problematic contradiction, in which financial education for the poor has been promoted in a context of already high documented levels of insurance understanding as well as the lack of information transparency by insurers. The reality is that the promotion of a financial literacy industry is a marketing strategy to stimulate the profitability of IBAI, which has simultaneously facilitated the dispossesssion of knowledge from farmers. This is not the first of such aggressive marketing strategies, one of the main reasons why the farmers demanded the product in the first place was due to the selective appropriation of local networks of NGO and farmer organizations in an effort to capitalize on local trust relationships. Farmers perspectives and experiences have exposed the politics behind the response to the low levels of demand for IBAI. In doing so, their perspectives have also elucidated IBAI role in producing new dimensions of vulnerability and reproducing processes of agrarian financialization and commodification.
5.5 Farmer Agency and Resistance

This chapter has relied heavily upon the use of a relational political ecology framework. The use of the framework has facilitated the conceptualization of farmers’ perspectives and experiences with IBAI within the production of various dimensions of relational vulnerability throughout the process of agrarian transformation in post-independence India. However, the benefits of using the framework to explicate the production of farmer vulnerability in relation to more powerful actors also resulted in an overshadowing of farmers’ expressions of agency and resistance which were present throughout the interviews. This section navigates this limitation by presenting four dimensions and expressions of farmer agency and resistance seen in this study.

The first two dimensions of resistance are analyzed in relevance to Hirschman’s work on the interplay of exit, voice, and loyalty (1970). The first dimension of resistance was seen in farmers’ conscious decisions not to demand (purchase) IBAI. The low levels of demands of IBAI and its implications were unpacked in the previous section, yet this has not been analyzed in terms of agency. Hirschman speaks of “exist” as one of the avenues through which a consumer can respond to a relationship in which he/she is experiencing a decrease in benefits. Exist, is related to a neoclassical understanding of free markets in which buyers and sellers can move freely through the market (1970). Consequently, farmers’ decision to exit the IBAI market as a result of dissatisfaction with the product could be understood as a conscious decision to “exit” from their relationship with the insurance industry.

The second dimension of resistance was seen in the pressures that farmers directly gave to the Agriculture Insurance Company of India and the government of Tamil Nadu so that they would go back to notifying NAIS scheme instead of the WBCI. Hirschman also speaks of “voice” as
another possible response to a situation in which a consumer is facing dissatisfaction in his/her relationship with an organization or industry. Voice refers to the decision to complain directly presenting one’s grievances with the hope of improving the relationship (1970). By seeing farmers as the consumers and agricultural insurance as the organization, this dimension of resistance is representative of Hirschman’s concept of using “voice”. The extent to which “voice” and “exit” are existent within a consumer’s deteriorating relationship with an organization has many implications for the nature of such relationships. The complex decision to use “voice” or “exit” is affected by the loyalty that exists in that relationship (1970).

James Scott contextualized the spaces for resistance from marginalized populations as he writes; “most of the political life of the subordinate groups is to be found neither in the overt collective defiance of powerholders nor in complete hegemonic compliance, but in the vast territory between these two polar opposites” (Scott, 1985, p.136). The next two dimensions of resistance lay within that “vast territory” which Scott refers to.

The third dimension refers to an act of “everyday resistance” which Scott explains is usually overshadowed by the focus on larger and visible organized collective action or rebellions (1985). Throughout the interviews, there were multiple instances in which farmers mentioned that despite the drastic changes to their cropping cycles, as a result of neoliberal modernization, they still used organic inputs and traditional paddy varieties on a small area of their land in which they grew food for their own family’s consumption. Farmers resistance to neoliberal modernization pressures to completely change their cropping cycle is a form or agency.

The final dimension of resistance was observed in farmers’ active engagement with local organizations who were either promoting the revitalization of traditional knowledge systems or practices to lessen the detrimental effects of new technologies. Throughout the interviews farmers
emphasized the importance of organic agriculture and traditional seed banks as supported by SOFA, the implementation of Systems of Rice Intensification\textsuperscript{16} through KKFF, revitalization of traditional seed varieties and organic inputs by CIKS, and the use of split doses of chemical inputs as recommended by PWSD-CARDS. All of this practices are in some way helping farmers resist the changes in their cropping cycle as brought forth by the agricultural transformation of the neoliberal modernization. In doing so they are also helping reshape farmers risk management practices and their abilities to cope with risk.

\textsuperscript{16} SRI: a way of growing rice which uses traditional practices, it has low water use, it is labor-intensive, uses organic methods and hand weeded with special tools.
6. Conclusion: The implications of IBAI in a context of agricultural transformation

Farmers’ perceptions and understanding of the main issues surrounding the role being played by IBAI products have exposed a number of paradoxes that problematize normative understandings of the significance of this product in the agricultural sector. This concluding chapter focuses on the ways in which the paradoxes, as exposed by farmers in this study, assist a process of situating this specific product within what has been described in this thesis as a dynamic process of agricultural transformation and the production of relational vulnerability. In the process of situating this financial product, there is an emphasis on direct and structural implications of a reshaping of farmer vulnerability as well as a broader understandings of critical development theory.

The process of agricultural transformation in post-independence India has been characterized by complex and symbiotic relationships of the movement towards the financialization, modernization, and commodification of agrarian relations. A framework on relational political ecology explicates the ways in which the dynamic transformational processes are embedded by unequal power structures amongst an increasing number of actors who in efforts to redefine agricultural landscapes are also redefining the ways in which farmers relate to their natural worlds. Furthermore, a relational vulnerability lens elucidates the ways in which such unequal power structures permeate the redefining of agrarian landscapes as the securities of powerful actors reflect vulnerabilities for already marginal actors. The role of agricultural insurance within such a complex process of agricultural transformation has been particularly influenced by an evolving neoliberal agenda. Consequently, in understanding the implications of
IBAI for the agricultural sector, it becomes imperative to look at the relationship between farmers’ perceptions of this financial product and its position within constructions of neoliberal reason.

6.1 IBAI within Constructions of Neoliberal Reason: Roll-out Neoliberalism

In using the evidence provided in this study to situate this financial product within the constructions of neoliberal reason, this paper alludes to Peck and Tickell’s differentiation between roll-back and roll-out neoliberalism (2002). Their argument is rooted in changes in the political and economic climate from the 1980s and 1990s. Although some have understood these changes as partial replacements for neoliberalism (Murphy, 1999), Peck and Tickell have conceptualized them as an evolution of neoliberal reason (2002). The evolutionary transition from roll-back to the roll-out of neoliberalism agenda is best described by the following excerpt from their paper on Neoliberalizing Space.

“The agenda has gradually moved from one preoccupied with the active destruction and discreditation of Keynesian-welfarist and social-collectivist institutions to one focused on the purposeful construction and consolidation of neoliberalized state forms, modes of governance, and regulatory relations.”

-Peck and Tickell, 2002, p.384

This study’s evidence suggests that the IBAI products can be understood and situated within the wave of roll-out neoliberalism. The internal logic within this wave of neoliberalism is rooted in market failures resulting from the deregulation of government services (Peck, 2010). The origins of Varsha Bima and Weather Based Crop Insurance in India are also rooted in the marginalization of small-scale farmers as a result of government deregulations in the 1990s and the failure of the agricultural insurance sector to fill that vacuum. Furthermore, Peck (2010) describes this wave of liberalization as one characterized by “market conforming regulatory incursions”, “selective empowerment of community organization and NGO’s as service providers”, and the development of “governance to embrace public private partnerships”. The
findings in this study represent multiple parallels between these financial products and the characterizations of roll-out neoliberalism. The remainder of this section will refer to Table A.2 from Appendix 2 in an effort to present the parallels with the index insurance products studied and the roll-out neoliberalism.

The evolution of market-conforming regulatory incursions” is evident in the agricultural insurance sector. Rooted in the failures of the private insurance sector to address the risk of marginal farmers, the state’s market conforming regulations manifested themselves in the agrarian sector through the consolidation of the Agricultural Insurance Company of India Limited, a private body run through public administration. The regulation is market conforming in that the AIC continues to be heavily influenced by pro-profit private sector mechanisms. The state’s relationship with the AIC is representative of the “continued crisis management of deregulated and privatized sectors”. As a result of its particular governance structure, the AIC has been the perfect stage for the “experimentation of market complementing forms of regulation”, some of which have included state subsidies of premiums & claims, the state’s role as the reinsurer of last resort, regulations for the tying of insurance products to government loans, and the constant evolution and institution of national crop insurance schemes.

Within the role of the AIC, the efforts to mainstream Weather Index Insurance products such as Varsha Bima or the WBCI are representative of the technocratic economic regulations within neoliberal parameters which characterize roll-out neoliberalism. The evidence presented in this study show that behind a poverty alleviation façade, the use of indexes represents a technocratic fix to issues of moral hazard and adverse selection which were compromising the market efficiency of the AIC products. Paradoxically, the focus on market efficiency through the use of weather index also requires active regulations from the state in the development and
maintenance of infrastructure and systems to guarantee the accurate availability of weather data (Isakson 2015).

Alongside the active role of the state, the evidence has also shown an overwhelming “selective empowerment of community organization and NGO’s as service providers” as part of the strategy for the production of demand for the financial product. This was evident in the paramount role played by the insurances sub-agents of KKFF, SOFA, and PWSD–CARDS in the provision of the index insurance to farmers. The organizations had all developed a long-term relationship based on trust with the farming communities where they worked. The selective empowerment of such organizations seems to represent the appropriation of local structures with the goal of capitalizing on trust relationships. The evidence on farmers’ understanding of the product demand demonstrated that beyond saving costs in developing local insurance provision infrastructures, the capitalization on trust relationships was a major marketing strategy that facilitated the expansion of the product despite its inability to cover farmers risk.

The close parallels between the characterization of roll-out neoliberalism and the evidence on Varsha Bima and WBCI facilitate a situating of IBAI within the construction of neoliberal reason. The significance of understanding the product as one within the evolution of neoliberalism rather than a movement away from it, lies in looking at the implications that this has on marginalized farmers and the transformation of agrarian landscapes at large. The following section looks at such implications in relation to the evidence presented in this study.

6.2 Implications for Agrarian Landscapes and Farmer Vulnerability

Throughout this paper, there has been an emphasis on the ways in which the agricultural transformation in India, through the historical processes of colonialism, the Green Revolution, and structural adjustment, has been embedded within the dynamic and complicated movements
towards agrarian modernization, financialization, and commodification. This movement has been characterized by the production and reproduction of relational vulnerability, as powerful actors in the process of securing their interests reshape the ways in which already marginalized farmers relate to their natural worlds. By using the evidence presented from farmers’ perspectives, the previous section situated IBAI in India as a continuation of a neoliberal project, which dates back to the structural adjustment projects of the 1990s in the agricultural sector. The significance of conceptualizing this product as an entrenchment of the neoliberal project is to understand the implications of this within an evolution of a process of reshaping agrarian landscapes and the resulting production and reproduction of dimensions of vulnerability for marginal farmers.

Farmers conceptualized the aforementioned agricultural transformation as one that is characterized by the systems of dependence that were constructed by an emerging group of powerful actors at all stages of the agrarian cropping cycles. Through what can be described as systems of dependence, farmers emphasized the ways in which this transformation changed the crops they grew and the way they grew them. The accounts of farmers in this paper are representative of what Taylor describes as complex socio-ecological relations where players are “actively yet unequally seeking to transform their lived environments” resulting in the production and exacerbation of farmers’ vulnerability (2015). Some of the major and interconnected dimensions of vulnerabilities induced by the constructed structures of dependence are evident in the raising levels of farmer debts, rising input prices, increasingly volatile and decreasing output prices, smaller farmer voice and agency in deciding what to produce and how to produce it, and decreasing access to nutritional foods amidst increasing levels of food production. Simultaneously, farmers have also faced a dispossession of traditional knowledge systems in the forms of agricultural practices, traditional seed varieties, and natural inputs. The production of systems of
dependence has been guided by successful efforts from powerful actors at various levels to secure their positions of power, depicting a relational lens to the production of vulnerability for marginalized farmers. The exacerbation of vulnerabilities for marginal farmers has had dire consequences for the farming community including the disheartening statistics on farmer suicide as well as the systemic pressures to leave agriculture resulting in the unsustainable de-agrarianisation of rural spaces. What role does IBAI play within what farmers described as the unequal transformations of agrarian spaces and what has been described in the literature as the production of relational vulnerability? As one of the heads of a farmer organizations told me upon completing the case study:

“...you are trying to link this product with the commodification of agriculture… already we commercialized everything and we try again to industrialize everything… at first look, [index] insurance may show some risk reduction, but in course of time it disintegrates the traditional way of doing things… it is not from the people, the product is from a market economy, so they convert the whole of agriculture, it is trying to make it fit into the modernized way”

-Anonymous Head of Farmer Organization

On first sight, the index insurance may seem to be promoting risk reduction for marginal farmers, a view which has been greatly influenced by the poverty alleviation and financial inclusion discourse under which it has been promoted (Seeks and Collier, 2008). However, as part of a product of roll-out neoliberalism, the implications for farmer vulnerability are much more complex. Within what they described as the move away from the traditional cropping cycle (Section 5.1), farmers conceptualized the role of insurance and the index product as an additional structure of dependence within their cropping cycles. This is a structure which is rooted in the failures of government deregulation of the 90s and on the market-friendly re-regulation that followed. As part of this restructuring, the index insurance has been pushed as a technocratic solution to cover the risks borne by small and marginal farmers. These risks have been exacerbated
by the changes in the cropping cycle which have made farmers dependent on loans to cover the interactions that they have with the emerging powerful actors. However, the evidence suggests that the solution is aimed at mitigating the risks faced by the insurers (e.g., adverse selection & moral hazard) rather than to actually cover the risks faced by the marginal farmers.

The new dimensions of vulnerability faced by farmers and induced by the proliferation of IBAI are in great part related to the product’s design. The rising levels of incidents of basis risk as a result of the area distribution and the indices themselves is one of the new dimensions of relational vulnerability faced by farmers. The relational lens relates to the fact that the basis risk faced by farmers represents a simultaneous decrease in risk for the insurer, as moral hazard is eliminated. The problems with basis risk are so common that it has resulted in farmers’ purposeful treatment and conceptualization of the product as a lottery or weather derivative rather than an insurance. Farmers’ conceptualizations of the product as a village lottery is representative of an entrenchment of agricultural financialization, through a dimension which Isakson describes as the financialization of climate risk management (2015). The incorporation of farmers as participants in complex financial markets also adds a dimension of vulnerability as seen through their exposure to volatile premium prices. This dimension was particularly true for private IBAI products such as Varsha Bima where the state does not subsidize the premiums, and where exponentially increasing premiums were observed throughout the years. This evidence reinforces the idea that this financial product can not be understood within the development intervention poverty reduction discourse through which they have been promoted. Instead, it can be said that they represent what Johnson refers to as “techniques attempting to articulate a particular chain of social and economic relations premised on the creation of financial consumers” (Johnson, 2013, p. 2676).
The evidence from the study also showed that IBAI contributes to a process of commodification of risk. However, risk in and of itself is not produced for sale; it is a natural product and a bi-product of markets and as a result represents a “fictive commodity” (Ribot, 2014). Subsequently, the process of making agricultural risk a commodity requires the active and aggressive engineering by states and private sector actors as they develop these markets. The capitalization by the state and insurance companies of trust relationships between farmers and local reputable organizations is one of the aggressive avenues through which the market for IBAI has been produced. The strategy is problematic because it reflects a long history of farmers’ mistrusts on schemes and products that are supposed to help them. The financial literacy programs by the state as a response to low levels of demand are also representative of another aggressive strategy to solidify the market for IBAI. Farmers’ perspectives on the issues of low demand presented a problematic paradox, in which the implementation of a financial literacy industry for the rural poor has occurred alongside high documented levels of insurance understanding as well as the lack of information transparency. These aggressive strategies represent the interests of the insurer and are focused on the profitability of the product rather than a response to the risk that small farmers risk.

In representing the interests of the insurer, the financial literacy programs are also reinforcing the dispossession of local knowledge. This reinforcement takes place as IBAI changes the “rule of the expert” from the farmers to the scientist, who in the production of weather indices attempt to represent the risks faced by farmers (Da Costa, 2013). The experiences that the farmers faced showed that this dispossession has occurred alongside what has been a historical dispossession of their traditional knowledge systems and alternative communal risk sharing arrangements as a result of neoliberal modernization. The privation of traditional knowledge systems has occurred in relation to the aggressive introduction of new technologies through
neoliberal modernization. Consequently, the dissolving of alternative risk sharing arrangements has been a result of the individualization of risk which has also been instituted through neoliberal restructuring. Such dispossessions have greatly altered the avenues through which farmers are now coping with agricultural risk.

Overall, IBAI has introduced new dimensions of vulnerability as well as reproduced existing dimensions as seen through the exacerbation of processes of agrarian commodification, financialization, and modernization. Financial means cannot replace the long history of farmers’ knowledge systems which are essential for their ability to cope with agricultural risk. A sincere attempt to address farmers’ risk has to be rooted in the process of agricultural transformations which produced those vulnerabilities in the first place. In acknowledging the roots of such production, this thesis has emphasized the importance of incorporating the missing narrative, the one of the people that have been marginalized by such vulnerabilities. If governments and the international community are actually concerned with farmers’ ability to cope with increasingly volatile agricultural spaces, farmers’ voice has to be at the forefront of designing and implementing the avenues through which they are to manage risk. No one more than them understands the realities of their lived environments.
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Appendix 1: Comparison of Yield and Weather Insurance

Table A.1: Comparison of Yield and Weather Insurance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Yield Insurance</th>
<th>Weather Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope of insurance cover</td>
<td>Covers yield shortfall</td>
<td>Covers anticipated shortfall in yield due to adverse weather parameters.</td>
</tr>
<tr>
<td>Scope of perils covered</td>
<td>All natural and non-preventable perils</td>
<td>Rainfall, minimum and maximum temperature, soil moisture, relative humidity, sunlight, day length etc.</td>
</tr>
<tr>
<td>Target group</td>
<td>All farmers growing insured crops</td>
<td>Farmers and others.</td>
</tr>
<tr>
<td>Crops</td>
<td>All crops for which past yield data is available</td>
<td>All crops for which correlation is established between yield and weather parameters.</td>
</tr>
<tr>
<td>Scheme approach</td>
<td>Homogeneous area approach(Taluk/block/mandal)</td>
<td>Homogeneous area approach (Jurisdiction of rain gauge).</td>
</tr>
<tr>
<td>Scope for introduction of insurance</td>
<td>Can be introduced for all crops with yield data</td>
<td>Can be introduced successfully for crops with good sensitivity to weather parameters.</td>
</tr>
<tr>
<td>Premium rates</td>
<td>High</td>
<td>Relatively lower and flexible.</td>
</tr>
<tr>
<td>Sum insured</td>
<td>Loan amount/150 per cent of value of production</td>
<td>Flexible. Can range from input cost to value of production.</td>
</tr>
<tr>
<td>Control on adverse selection/moral hazard</td>
<td>Relatively less control</td>
<td>Almost complete control.</td>
</tr>
<tr>
<td>Time taken for settlement of claims</td>
<td>May range from 6-9 months from occurrence of loss</td>
<td>Within two weeks from close of indemnity period.</td>
</tr>
<tr>
<td>Administrative set-up</td>
<td>Relatively large</td>
<td>Relatively small.</td>
</tr>
<tr>
<td>Transaction cost</td>
<td>High</td>
<td>Moderate and affordable.</td>
</tr>
<tr>
<td>Transparency</td>
<td>Not transparent</td>
<td>Transparent and easily verifiable.</td>
</tr>
</tbody>
</table>
Appendix 2: Relational spaces of neoliberlization

Table A.2: Constructions of neoliberal reason

<table>
<thead>
<tr>
<th>Roll-back neoliberalism . . . the destructive and deregulatory moment</th>
<th>Roll-out neoliberalism . . . the creative and proactive moment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shallow neoliberalization . . . pursuit of locally specific strategies</td>
<td>Deep neoliberalization . . . inter-local connectivities and reflexive relations</td>
</tr>
<tr>
<td>Attacks on inherited Keynesian-welfarist structures, coupled with primitive deregulation of markets, including:</td>
<td>Extension of neoliberal strategies to the international domain, including:</td>
</tr>
<tr>
<td>* monetarist macroeconomic management</td>
<td>* reductions in overseas aid</td>
</tr>
<tr>
<td>* primitive marketization: dogmatic deregulation and privatization</td>
<td>* imposition of structural adjustment programs</td>
</tr>
<tr>
<td>* place-specific assaults on institutional and spatial strongholds of welfare statism and social collectivism (e.g. social service cuts, deunionization)</td>
<td>* initial liberalization of financial markets and trading relations</td>
</tr>
<tr>
<td></td>
<td>* external imposition of neoliberal strategies</td>
</tr>
<tr>
<td></td>
<td>* intensification of coercive pressures emanating from international markets</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spatial Relations</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Table 1.2. Relational spaces of neoliberalization</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Adapted from Tickell and Peck (2003).
Appendix 3: Varsha Bima Details

**Figure A.1: Varsha Bima Details**

Details of Varsha Bima from Agricultural Insurance Company of India Website

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**VARSHA BIMA (RAINFALL INSURANCE)**

- Provides protection against adverse deviations in rainfall during South West Monsoon period, both deficit & excess
- Provides for stage-specific adverse deviations in rainfall with flexible premiums
- Maximum liability is linked to cost of cultivation and varies from crop to crop
- Allows for speedy settlement of claims, say within 4 – 6 weeks after the insurance period

Sixty percent of India's agriculture is heavily dependent on natural factors, particularly rainfall. Studies have established that rainfall variations account for more than 50% of variability in crop yield. Varsha Bima is a mechanism for providing effective risk management aid to those individuals and institutions likely to be impacted by adverse rainfall incidence. The most important benefits of Varsha Bima are:

- Trigger events like adverse rainfall can be independently verified & measured.
- It allows for speedy settlement of claims, as early as a fortnight after the indemnity period.
- All cultivators – irrespective of loanee or non-loanee; Small / Marginal or Other; Owners or Tenants; Sharecroppers can buy Varsha Bima.
- Varsha Bima provides transparent, fully objective and flexible premium & compensation structures suiting varied requirements of different sections of the farming community.
- Wide choice of Varsha Bima coverage options are available – Sowing Failure risk, seasonal rainfall, rainfall index, etc.
- Varsha Bima payouts are transparent, efficient & direct, and hence more effective, scientific and foolproof compared to the government relief.

**The salient features of the Scheme**

**Scope:** Varsha Bima covers anticipated shortfall in crop yield on account of adverse rainfall. Only those cultivators who stand to lose financially upon adverse incidence of rainfall can take insurance under the scheme. Varsha Bima is voluntary for all classes of cultivators.

**Period of Insurance:** The insurance operates during June to September for short duration crops; June to October for medium duration crops; and June to November for longer duration crops. Further, these periods are state specific. In case of ‘Sowing Failure’ option it’s from 15th June – 15th August.

**Insurance Buying Period:** A cultivator can buy Varsha Bima only up to 15th June for ‘Sowing Failure’ option and 31st May for other options.

**How Claims become payable:** Varsha Bima guarantees a pay-out on a graded scale, upon adverse incidence of rainfall. Claims arise when the ‘Actual Rainfall Incidence’ during the period of insurance falls short of the specified levels of ‘Normal Rainfall Incidence’. In such cases, all insured cultivators under a particular crop and coverage option shall be deemed to have suffered the same deviation in rainfall and become eligible for claims. The rainfall data is measured by India Meteorological Department (IMD) at their observatories or other participating rain gauge stations during the season.

**Varsha Bima Coverage Options**

- **Option I:** Seasonal Rainfall Insurance
- **Option II:** Rainfall Distribution Index
- **Option III:** Sowing Failure

Sum Insured: Sum Insured pre-specified and normally is between cost of production and value of production. In case of ‘Sowing Failure’ option, it is the maximum input cost incurred by the cultivator till the end of the sowing period, which again is pre-specified.

**Premium:** It’s pre-fixed and may vary from option to option and crop to crop. The premium for different crops/areas/coverage options range between 5% - 8%.

**Time Schedule and Procedure of Claims Payment:** The procedure for working out Claims is automated, and there shall be no necessity for submission of ‘loss information’ or ‘claims information’ by insured cultivators. Normally claims are paid on the basis of Actual Rainfall data within 45 days from end of indemnity period.

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**Agriculture Insurance Company of India Ltd.**

Website: www.acofindia.com
## Table A.3: Breakdown of all Interviews

<table>
<thead>
<tr>
<th>SI #</th>
<th>IBAI Product</th>
<th>Designation</th>
<th>Organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Varsha Bima</td>
<td>sub-gent</td>
<td>SOFA</td>
</tr>
<tr>
<td>2</td>
<td>Varsha Bima</td>
<td>sub-gent</td>
<td>SOFA</td>
</tr>
<tr>
<td>3</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>SOFA</td>
</tr>
<tr>
<td>4</td>
<td>Varsha Bima</td>
<td>sub-gent</td>
<td>SOFA</td>
</tr>
<tr>
<td>5</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>SOFA</td>
</tr>
<tr>
<td>6</td>
<td>Both</td>
<td>CEO</td>
<td>KKFF</td>
</tr>
<tr>
<td>7</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>KKFF</td>
</tr>
<tr>
<td>8</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>KKFF</td>
</tr>
<tr>
<td>9</td>
<td>Varsha Bima</td>
<td>sub-gent</td>
<td>SOFA</td>
</tr>
<tr>
<td>10</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>SOFA</td>
</tr>
<tr>
<td>11</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>SOFA</td>
</tr>
<tr>
<td>12</td>
<td>Varsha Bima</td>
<td>sub-gent</td>
<td>KKFF</td>
</tr>
<tr>
<td>13</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>SOFA</td>
</tr>
<tr>
<td>14</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>N/A</td>
</tr>
<tr>
<td>15</td>
<td>Varsha Bima</td>
<td>policy-holder</td>
<td>KKFF</td>
</tr>
<tr>
<td>16</td>
<td>WBCI</td>
<td>policy-holder</td>
<td>PWSD-CARDS</td>
</tr>
<tr>
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<td>WBCI</td>
<td>policy-holder</td>
<td>PWSD-CARDS</td>
</tr>
<tr>
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<td>WBCI</td>
<td>policy-holder</td>
<td>PWSD-CARDS</td>
</tr>
<tr>
<td>19</td>
<td>WBCI</td>
<td>policy-holder</td>
<td>PWSD-CARDS</td>
</tr>
<tr>
<td>20</td>
<td>WBCI</td>
<td>sub-gent</td>
<td>PWSD-CARDS</td>
</tr>
<tr>
<td>21</td>
<td>Both</td>
<td>Director</td>
<td>Agriculture Insurance Company</td>
</tr>
<tr>
<td>22</td>
<td>Both</td>
<td>Professor</td>
<td>Agricultural Economics Research Unit</td>
</tr>
</tbody>
</table>
Appendix 5: Interview Questions

**Interview Script for Policy Holders** (Expected to be 20-40 Mins)

What do I want to know?
- Who is buying the product? Who is not?
- For what reasons are they buying it?
- Before the product how were farmers dealing with risk management, and how has that changed?
- How has it changed their agricultural practices? Inputs? Seeds? Farming practices? Use of machinery?
- What are the main limitations of the product?

Questions:
1. For how many seasons have you bought crop insurance? And what types of insurance has it been?
   a. Where did you hear about IBAI and how was it sold to you? Who is selling it?
   b. If they have availed more than one type of insurance: What are the main difference between IBAI and other crop insurance that you have used?
2. For which reasons did you decide to buy this particular IBAI?
3. How has been your experience with the Insurance so far?
4. What have been the major changes in your farm since you purchased the insurance?
   Before and after?
   a. Inputs?
   b. Seeds?
   c. Practices?
5. Has there been any changes in the type of loans or subsidies that you receive, since you got the insurance?
6. What are the main benefits of this type of insurance? What are the main limitations?
7. What type of risks is the insurance covering?
   a. What type of risk is the insurance not covering?
   b. Since you purchased the insurance do you feel more secure?
8. Before insurance was available how did farmers manage risk?
9. Do you know farmers who don’t have this insurance?
   a. Why do you think they don’t purchase it? How do they manage risk?
10. Do you think there is a need for insurance in agriculture? If so what changed in agriculture that created a need for crop insurance?
11. In India who gains the most from crop insurance?
12. Why do you think that only very few farmers in Tamil Nadu are purchasing the insurance?

**Interview Script for Sub-Agents (Farmer Groups)**

What do I want to know:
- Why did they decide to sell the products?
- How are they selling it? And why are they selling it in that way?
- Apart from risk management, what are the other benefits of the product to the market?
- What has been the role of central and state government in the support of the fertilizer?
• How does the product influence the farming practices?

Questions:
1. For how long has your organization been selling the index based crop insurance? How long have you been a part of the organization?
2. What other products services do you provide to the farming community?
3. If they sell other insurance products:
   o What is the main difference between IBAI and (Other product)? How does it benefit farmers differently?
4. What are the main benefits and limitations of the IBAI?
   o Beyond risk management does the product offer anything else to farmers or the agricultural sector?
5. How do you sell the product?
   o Is there any bundling with other products and services?
6. Why did you decide to sell it that way?
7. Why are farmer groups as agents important in the sales of Insurance? Why can’t the AIC sell directly to farmers?
8. From your experience how does Index Insurance change the farmers’ practices?
   o Inputs?
   o Seeds?
   o Practices?
9. What are the advantages and limitations of this insurance, for farmers and for the insurer?
10. What has been the role of central and state government in supporting the sales?
11. What has been the response of farmers to the product?
12. Why do you think are the main reasons why farmers are not demanding the product?
13. What are other forms of risk management used by farmers?
   o How does insurance interact with such risk management practices
14. What changed in agriculture that created a need for agricultural crop insurance?