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FINANCIAL STRATEGIES FOR COPING WITH DROUGHT IN INDIA: A LIVELIHOODS PERSPECTIVE

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This document represents part of the author's study programme while at the Institute of Social Studies. The views stated therein are those of the author and not necessarily those of the Institute.

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List of Acronyms

AIC: Agriculture Insurance Company of India Limited

APL: Above Poverty Line

BPL: Below Poverty Line

CE: Circular Economy

DBT: Direct Benefit Transfer

FGD: Focus Group Discussion

FSM: Food Sovereignty Movement

ICL: Income Contingent Loan

KCC: Kisan Credit Card

KVK: Krishi Vigyan Kendra

MP: Madhya Pradesh

NAIS: National Agricultural Insurance Scheme

NREGA: National Rural Employment Guarantee Scheme

NSSO: National Sample Survey Organisation

NGO: Non-Governmental Organisation

PDS: Public Distribution System

RCT: Randomized Control Trial

RTI: Right to Information

SIB: State Investment Bank

UP: Uttar Pradesh

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Dedication

I dedicate this research paper to the people of Bundelkhand, that they continue to be resilient in the face of adversity and continue the process of inventing livelihood opportunities based on their context. I also dedicate this thesis to my family who have given me everything, who have always believed in me and who are the inspiration behind my orientation towards development studies.

Abstract

Global climate change has wreaked havoc on agriculture. It has altered weather patterns and, thereby, changed the intensity of the monsoon in India. In recent years, India has received insufficient rainfall, resulting in droughts in many parts of the country. As a result, farmers are forced to look for alternative sources of income outside of agriculture. Those remaining on their farms try to supplement their income with the various government schemes. Together, these serve as coping mechanisms. In order to study the phenomenon in depth we visit some of the poorest districts of India ravaged by continuous droughts in an area called Bundelkhand. We investigated the financial coping strategies of the mainly small- and medium-holding farmers to the crisis. The strategies were divided into private and public. The former consisted of banks and moneylenders on the one hand and migration on the other. The latter, government policy interventions, comprised mainly of the National Rural Employment Guarantee Scheme and a newly-launched crop insurance scheme of the government. We employ the Livelihoods approach to organise our study. Complex connections between private and public strategies were traced.

Despite the homogeneity of the harsh terrain we found a variety of responses across identical members of the agrarian classes. There is use of both formal and informal lending. The extent of migration varies between groups. The evidence on the employment guarantee scheme is mixed. The crop insurance scheme results are equally varied and some farmers are inquisitive about it. Our broad observation is that decent livelihood options for farmers both on and off the farm are many. They can finally break the chains of traditional dependence on exploitative financial institutions.

Relevance to Development Studies

This paper is related to the debate between the role played by characters in the two domains, the public sector and the private sector, in the rural community during specific circumstances such as a drought. It assesses the different autonomous strategies and government schemes related to these circumstances and analyses their interplay and delivery.

Keywords

livelihoods, drought, coping, Bundelkhand

Chapter 1: Background of Study

1.1 Introduction

The term 'agrarian crisis' in India is commonplace. India is among the most vulnerable drought-prone countries in the world and about two-thirds of its gross cropped area is drought prone. Since the mid-nineties, the country has been experiencing prolonged and widespread droughts in consecutive years with increasing frequency in recent times. Although agriculture contributes only 14.62% of India's GDP, the majority of the Indian people depends on agriculture and allied activities for their livelihood. About 60% of the total cultivated area in India still relies on natural rainfall. Despite 70% of the country living in rural areas and the main occupation being agriculture and related activities, no targeted or appropriate response by State and Central Governments to confront agricultural vulnerability and provide alternatives for the farmers has been forthcoming. However, sporadic success stories are told of particular States and with particular aspects of agricultural development either due to the political will of the government in power or due to the constant pressure exerted by NGOs working in the area.

In times of drought, the farmers turn to various mechanisms to cope. They depend on the state as well as private mechanisms. This study utilizes the Livelihoods framework and its conceptual tools to study the ongoing drought situation in India.

1.1 Research problem

The recent period of climate change in India has, naturally, had a heightened impact on small and medium farmers across the country. The average size of operational holdings of marginal and small farmers in India is between 0.45 (marginal) and 1.45 (small) hectares. There is some difference between States but in our States of interest the size of holdings of large farmers is, on average, 16 hectares. There are medium categories in between that fall between 3 and 6 hectares, on average. The monsoon deficit of 14% this year is the third instance since independence in 1947 and the fourth since 1901 of two consecutive years of meteorological droughts. Indeed, along with other elements, the present conjuncture has been compared to the El Niño years of 1997-98 and 2002-03 (Sen, 2016). This El Niño which resurfaced between 2014-15 hit India hard with up to 18 of the 29 states being declared drought-affected. The effects are still being felt and has put agriculture in jeopardy and farmers at high risk. One by-product is people fleeing the countryside in search for livelihoods which the town does not provide.

In the absence of growing incomes in both, to the falling supply of food is added the non-decreasing demand for it.

All farmers would benefit from decreased vulnerability to climatic risks. Crop insurance is a recent method to help mitigate these risks. The strategy, the world over, has emerged as a tool to cope with the vagaries of the weather, both seasonal and catastrophic. As a universal financial solution it has been implemented in India but unenthusiastically and with limited impact. The problem is that of penetration to the small and medium farmers. Just 4.7% of wheat farmers in India insured their crop in 2012, according to a situation assessment survey of farm households released by the NSSO in December last year. In 2012, 4.8% of paddy farmers and 10.4% of cotton farmers insured their crop, the survey found. Among farmers who never insured their crop, 43% of paddy growers did not know about crop insurance. The numbers are 21% and 40% for wheat and cotton farmers, respectively. At the same time, the strenuous attempts to craft and pursue schemes by the Indian government only get bolder.

Other formal and informal means of coping with agrarian distress have been in place for ages. The most common is the traditional form of borrowing from various institutions such as banks and the local moneylenders. The nationalisation of banks in India marked the decisive thrust of formal finance into and across the rural countryside. This movement has continued since the 1960s. Maximization of profits was not the primary objective of these institutions and governments always stood by ready to underwrite losses. As a result, interest rates were low. Recovery rates, on the other hand, vary across classes and seem paradoxical. Official documents as well as anecdotal evidence support the proposition that wealthy farmers are more likely to default on their large loans. Small farmers return their small loans, in general, except in conditions like continuous droughts over years. Informal finance in India is epitomised in the moneylender. Infamous in fact and fiction as an agent of exploitation in the countryside, the moneylender addressed all the limitations of mainstream finance. Credit supply was timely and modulated to demands. The familiar problem was interest rate gouging driven by the desperation of poor farmers in situations of dire need. Here, as well, remarkably, rural India is not immune to the gales of competition. The moneylender is no longer a monopolist and has to compete not only with new financial networks that emerge with the town but also from the competition exercised by commercial banks that have begun to research their client bases and tailor make products for different ends. Technology has an instrumental role to play. Incomes may be zero but everybody possesses an asset in the form of a mobile phone. Banking facilities are available at the click of a button. All the same, the rising cost of agricultural inputs with subsidies from the gov-

ernment on a downward trail is one of the major reasons why the farmers are forced to borrow.

Another remarkable scheme, universally acclaimed for its coverage of every district in the country, is the NREGA. The principle is the offer of employment for not less than 100 days a year at a dignified daily wage to willing and able male and female hands. The scheme is only a few years old and evidence of success across the country is mixed. The success stories are narratives of villagers moving beyond Keynes' metaphorical digging holes in the ground and filling them up to constructing durable and technologically-imaginative assets. Ponds and irrigation projects to distribute water designed for local environments are examples relevant to our theme. The core principle at work is the removal of the stochastic shock element from the plans of farmers. Income is assured throughout the agricultural cycle. One of the major issues plaguing this scheme is the use and abuse of data. Collection of systematic data is increasing in leaps and bounds as is its distortion. Mid-level government functionaries continue to under- and over-report. Government data showcases the increasing coverage and the works accomplished but barrenness is often found instead of worksites. Allocated wages, adding up to huge amounts, often do not reach workers.

A final strategy, in place for many rural lifetimes, is migration to the city. For reasons such as drought, over 184 million people all over the world were displaced from 2008 to 2014 (FAO, 2016).

Finally, ever since independence, and with the system of Five-Year Plans, support of agriculture has played a large, if dwindling, role in policy making. The interventions have involved both quantities and prices. Procurement of foodgrains at assured prices is a policy that embraces both. Input subsidies are price supports. The system of Plans has recently been abandoned and, in general, reflecting universal ideology, the Indian state is rolling back. Subsidies, albeit with much to and fro reflecting the power of wealthy farmers in the Indian polity, are slowly, but surely, being reduced. The belief in the freedom to choose has meant that rather than distribute food, the government is inclined to distribute cash or vouchers, allowing farmers to choose their commodity and service bundles. The PDS is yet another fall-back for the farmers in times of distress. It includes the sale of various essential commodities at subsidised rates. The scheme, obviously, is targeted at the poor or low-income farmers. The items are usually measured to support an entire household and the quantity is approximately calculated to last for a significant length of time. However, the quality of these items are a major protest point. Once again, there is a significant gap in the information displayed and the experiences endured by the targeted farmers. As in all things, the distribution of benefits is often perverse.

The polarisation of the peasantry is a reflection of the inequalities that plague the country and countries of the world. Some of this is polity-driven, the resoluteness of political party after political party in India not to 'touch' rich farmers. Incentives naturally operate. The super wealthy in the towns invest in land and the gap between the rich and the poor widens.

1.2.1 Research Questions

Our research questions, then, are as follows:

- How do farmers, mostly small and marginal, use private mechanisms like banks and money lenders to cope with drought?
- What is the role played by state policy in the form of a. NREGA, b. Cash transfers and subsidies, and c. A government crop insurance scheme, in addressing droughts?

1.2.2 Research sub questions

Our supplementary research questions follow:

- Are coping and state intervention complements or substitutes?
- What are the spillover effects of the different component strategies?

For instance, successful NREGA employment implies that weather fluctuations have no role to play in livelihoods and the need for insuring crops, on that account, is reduced. A successful record of migration to the city, cemented by caste and class networks forged through generations, robs the other strategies of their force. Finally, and this concerns the dynamic States formed recently, a government devoted to growth and distribution can protect vulnerable farmers, especially, from both natural and social vagaries. Effective economic and social protection can blunt one of the reasons for distress migration (FAO, 2016). What is the balance of these forces in Bundelkhand?

1.3 Methodology

For the interaction with farmers, we networked with two NGOs in the city of Jhansi in the state of Uttar Pradesh and part of the Bundelkhand Region. The initial method for data collection was Individual Interviews. On reaching the research area, however, we found it difficult to distinguish finely between small and medium farmers and as it was easier for them to congregate at a village landmark. The method was changed to a FGD. A simple questionnaire was prepared, a draft of which is given in an Appendix below, which incorporated both quantitative as well as qualitative elements. The planned sample size was approximately between 12-15 groups covering various groups of farmers. A limitation of

FGD is that poor farmers are shy and withdrawn and would be especially reluctant to share sensitive ideas and concerns publicly. Due to small sample size and the heterogeneity of individuals, our findings are not adequate to make strong projections. The groups formed at short notice are somewhat artificial. The respondents might have been prompted to express themselves and act unnaturally. The findings must be viewed cautiously. Secondary data sources provided quantitative information on the size of land holdings, the type of soil, the variety of crops grown, the water table and the ground water level, the amount of crop damaged on average, annual income, cost of inputs. The components relevant to our topic were the number and size of loans taken from the moneylender (informal) or bank (formal), frequency of repayments and defaults, the number and types of borrowings. With regard to secondary data, governments will define and collate information, to the extent possible, in terms advantageous to them. The information sold by private organizations, as well, need not be more reliable as they often have a client base to placate. The sources were the official government websites and records, the National Crime Records Bureau, and the National Sample Survey.

1.4 Risks and Ethical Challenges

The biggest risk is that the field research was conducted during the monsoon season and the farmers were not available in large numbers. The next risk was that of privacy of information. The government officials may not have cooperated to the desired extent and it was not easy to get appointments. They were less than forthcoming with the required information. The biggest ethical challenge was to remain professional and not get “too participative” with the individual cases of the farmers. Medium farmers and small farmers were treated equally.

Chapter 2: The Livelihoods Approach: Theoretical and Analytical Framework

2.1 Introduction

This chapter reviews the relevant concepts pertaining to the Livelihoods approach, developing it against a critique of mainstream approaches. Micro and macro components are distinguished all the while relating them to India and the circumstances of drought. The analytical framework of Ian Scoones in his Sustainable Livelihoods Approach, in particular, will be utilized to analyse the issue of living and coping in the given context.

2.2 Concepts in the Livelihoods Approach

A central concept in the Livelihoods approach is that of institutions and organisations. Institutions are the 'rules of the game' while organisations are 'the players'. Feedback between the two follows. Individuals, by means of their actions, generate institutions and institutions feed back to determine their actions. The outcomes need not be efficient nor optimal. Indeed, there might be multiple equilibria. That is, the same data can generate different solutions. The case for policy intervention arises precisely when the players are locked into an inferior outcome. Since it is an equilibrium, the government is required to "nudge" them to a superior outcome. When many institutions and organisations, both formal and informal, govern access to resources and, thereby, livelihoods, the situation is described as "legal pluralism" (Merry, 1988). In such contexts, people would be inclined to choose the path that maximizes their own utility or they may hedge their bets and experiment with different configurations. In other words, they may shop for institutions and organisations. Once into a particular duo, they will measure the benefits of staying against the transactions costs of continuing shopping. In the context of legal pluralism, this is known as "forum shopping" (von Benda-Beckman, 1995) and is an important part of constructing a livelihood (Mehta et. al., 1999). The decision to stick or quit, measuring costs and benefits, is an illustration of the neoclassical method and the closeness and distance between the Livelihoods approach and the neoclassical will be explored below. An 'optimal' institutional and organisational set is assumed to exist in the latter. Only, frictions impede the smooth movement of people towards it.

The concept of sustainability, according to the Brundtland Commission (WCED 1987), is the felicitous combination of economic, social and environmental factors. It is unavoidably an arena of debate and delibera-

tion often entertaining diametrically opposing views (Scoones, 2007). It, thus, welcomes a conversation across disciplines, from the natural to the social sciences, and between policy domains, from economics (discussions of the “green economy” to “natural accounting”) to environmental science (global climate change forecasting to ecosystem modeling) to sociology and political science (lock in and democracy) (Scoones et al., 2015).

The concept of ‘sustainable rural livelihoods’ is increasingly critical to the debate about rural development, poverty reduction, and environmental management. In a study of land reform sites in Zimbabwe, a class analysis of agrarian dynamics is linked to a description of livelihood strategies (Marongwe et al., 2010, 2012). Based on a sample of four hundred households, fifteen different livelihood strategies are identified, following the typology developed by Andrew Dorward, 2009, from “stepping up” (accumulating and investing), to “stepping out” (becoming destitute and migrating). The study concluded that there was a significant group of households “accumulating from below” (Necosmos, 1993; Cousins, 2010), whereby they were generating assets and investments from farm production and other local economic activities. Importantly, the study distinguishes between those “accumulating from below” and those dependent, at least in part, on “accumulation from above”, through patronage and other means. This is important in the overall assessment of agrarian dynamics given the very different nature of political and economic alliances and commitments to the land involved. The study concludes that “emerging class dynamics in the new resettlements are complex, often highly contingent and not easy to categorize neatly; ...” (Scoones et al., 2012: 521).

2.3 Through a critique of mainstream approaches

Our framework is compared and contrasted with a neoclassical way of proceeding with the subject not the least because the Indian Government policy is based on a neoclassical orientation. As an illustration, the cost-benefit ratio is a central concept (Government of India, 2007: 33). In a situation where the cost of preventing a flood far exceeds the benefit it would be “bad economics” to consider the endeavour in face of the “scarcity” of “capital”. The individual farmer is at the heart of the implicit theory, minimizing her risks over an infinite horizon. Information is more or less perfect although it usually is asymmetric. In other words, with a mobile phone, rich and poor alike have access to information but the data about the farmer (the Agent) is unavailable to the state or businesswoman (the Principal). Secondly, a line can be traced from information to action. In contrast, the Livelihoods approach highlights cognitive and environmental filters intervening between data and plan. Thus, even if a deterministic statistic about the forthcoming crop is available, responses will vary depending on whether the overall mood is optimistic or pessimistic. In addition, in the long run, inefficient out-

comes cannot endure in the neoclassical framework. The strong will enter and the weak will exit. We illustrate an application of the textbook. A private company in the state of Madhya Pradesh in India, which includes our area of investigation, supplied a rainfall-based weather insurance product (Hill, Robles & Ceballos, 2016). The experience challenged the usual assumptions. The first concerned the horizon of the farmer. Purchasing insurance today did not increase the likelihood of doing so tomorrow. However, a payout mattered. The implication concerned trust in the insurer. The scheme referred to is index-based and, consequently, has an inherent drawback. It cannot represent the loss of an individual farmer. At the same time, since payoffs are based on an easily observable fact, average yields instead of individual yields, the problems of asymmetric information are ameliorated.

We turn our attention now to the fashionable so-called happiness research. In the context of the rural sector of a nearby state, Chhattisgarh, over the period 2010-2013, White, Fernandez & Jha, 2016, advocate a multi-dimensional approach to the wellbeing of people based on their perceptions and understanding of their situation and beliefs in their capabilities. Operationally, along with numbers, they advocate a qualitative interpretation of interview data. Echoing Amartya Sen and highlighting the limitations of happiness research, the three scholars propose that the relationship between farmers and commodities and services is complex. Small farmers may remain hostile and resentful even with increasing government largesse. On the other hand, a tiny investment may generate 'multiplier' effects on their feeling of wellbeing and belonging disproportionate to the physical attributes of the good or service. Indeed, the reservations about the happiness approach to appraisal are directed at the Greek equation of happiness with pleasure. Instead of this hedonic measure, dynamic governments, at least, are beginning to appreciate the eudaimonic measure originating with Aristotle, that happiness lies in the pursuit of a meaningful life.

Even more the rage in development economics are the applications of RCTs. The Nobel laureate Angus Deaton has launched sophisticated broadsides against its use in development work (Deaton & Cartwright, 2016, is a recent illustration). The charge is that RCTs are not tuned in to the preferences of people, both individually and collectively. An extreme indictment is that RCTs might be no more than another technique paternalistically applied by the privileged to those not so. In the Chhattisgarh study above, risk is measured exclusively in technological terms as distance from a weather station. Deaton & Cartwright appeal for the methods to be incorporated into a democratic process of public discussion. The attribution of causal relations, difficult at best, must be backed by a sense of economic and social structure. The study of the weather insurance product in Chhattisgarh deals superficially with the political economy of class differentiation. The clients are small holders with no formal education and no prior exposure to anything resembling the experience. The products are hedges representing a fair level of complex risk management. Yet, the authors report that, while finding

the result “unusual”, education in the details of the product increased demand “significantly”. Interventions like crop insurance schemes are geared towards generating results rather than investigating the exact pathways to be taken, forwards and backwards, towards approaching the broader objectives of financial independence. The strategy in the latter case would be to use crop insurance as an entry point to formulating and testing models that go beyond the immediate equations between interest and premium. RCTs also do not work through structural effects. A supply shock like an insurance policy in a financial market will create tradeoffs with labour and goods markets. Prices elsewhere, or wages, may change. For instance, a wealth effect may be experienced, increasing the demand for schools and health care. Supply may be non-existent. If in place, prices or queues or both, may change. Scale is critical. An indifferent State government, for instance, might look on benignly at an insurance scheme implemented in a poor region but the government would staunchly resist a crop insurance drive targeted at poor farmers across all districts. The reason is that the political equilibrium determined by the rich farmers would be disturbed.

2.4 The Livelihoods approach: micro

While discussing the Livelihoods approach and the environment, it is necessary to first introduce the concept of natural capital. According to Scoones, natural capital is stock of natural resources like soil, water, air, and environmental elements like the hydrological cycle, pollution sinks from which resources and services germane for livelihoods are derived (Scoones, 1998). Thus, the discussion of livelihoods and environment leads naturally to the issue of scarcity of resources. Jean Drèze and Amartya Sen in their copious reports on famines in India through time reported the manmade and, consequently, avoidable starvations and deaths that occurred under that label. Similarly, the political economy of scarcity embraced here argues that scarcities are always class-related but varying in different particular socio-economic settings (Hartman, 2010). The simplicity of environmental change narratives helps but geography is inevitably embedded in institutions, education and training systems, and the policy machinery. This institutionalization of narratives plays out over decades, spanning colonial and post-independence periods.

In this environmental storyline, classes are divided into saints and sinners. The villains are usually the poor, the marginalized and those whose livelihoods lie outside the norms of the settled, civilized agriculturists or urban dwellers. In the process, livelihoods are placed outside the pale of the law and indigenous peoples are denied access to the resources which they have depended upon since the beginning of time. Ecosystems are thus not static blocks of natural capital to be preserved or traded. Rather they are dynamic, changing sometimes in a nonlinear fashion. Insights from non-equilibrium ecology are important as they

challenge the closed-system managerial notions of protection, control, carrying capacity and limits (Behenke & Scoones, 1993; Scoones, 1995, 1999; Zimmerer, 1994). Disequilibrium ecologies require a management approach that is open-systemic and feedback (Berkes et al., 1998; Folke et al., 2002; Walker & Salt, 2006). However, instead of employing natural resource ecologists and respecting local inhabitants who control and manage their available resources themselves, more often than not we observe a top-down approach on ideas of limits and controls by the state which blur the line between the grit and grime of reality and policy packages taken from the shelf. The conclusion offered by Scoones is that an infinitely more nuanced, differentiated analysis is required. Some people may be exploiters of nature, others guardians. How they interact has more to do with the relations of production and local political postures than their identification as local or indigenous people.

Neoclassical forces do not seem to operate as the poor are locked into suboptimal consumption and production activities. While they are free to exit, they choose not to. Sometimes superior technologies and arrangements are available but the potential beneficiaries choose not to adopt them. Darwinism does not seem to have any place in the evolution of societies (Gershman, 2016). Anthropologists define culture in functionalist terms, as environmental adaptation to felt local needs, providing identifiable benefits to members of a community. A given culture may also come at a cost in the form of ingrained maladaptive characteristics. On the other hand, in contrast to popular perceptions, culture may be neither persistent nor slow moving. The terms “punctuated equilibrium” or “tipping” are used to denote practices that may persist for aeons and then sharply vanish. On a different front, the FSM has embraced the vision of the planet being at a tipping point with regards to climate change repercussions (McMichael, 2016). The value of FSM is a critique of the commodification of food systems. The value of intimate knowledge of their particular circumstances by farmers is important here as is appropriate inputs in agriculture. Secondly, our notion of knowledge is respectful of the particular circumstances of the farmers in Bundelkhand. Scholars of the subject insist that knowledge emerges out of the focussed collective efforts determined by the character of the environment in which each individual is placed (Antonelli & David, 2015). Knowledge is not information but the outcome of a driven process. Thus, the process of designing new financial portfolios must take into account the context of old financial portfolios and the landscape of both. The state will have to play no small role in transforming the “sticky” knowledge of moneylenders and so on to new knowledge. Records are to be found of popular modes of finance outside the pale of the standard universal models where not only is performativity paramount but is, indeed, the whole business of finance (Ailon, 2015). “Awareness of performativity” returns the vocabulary from principal and interest

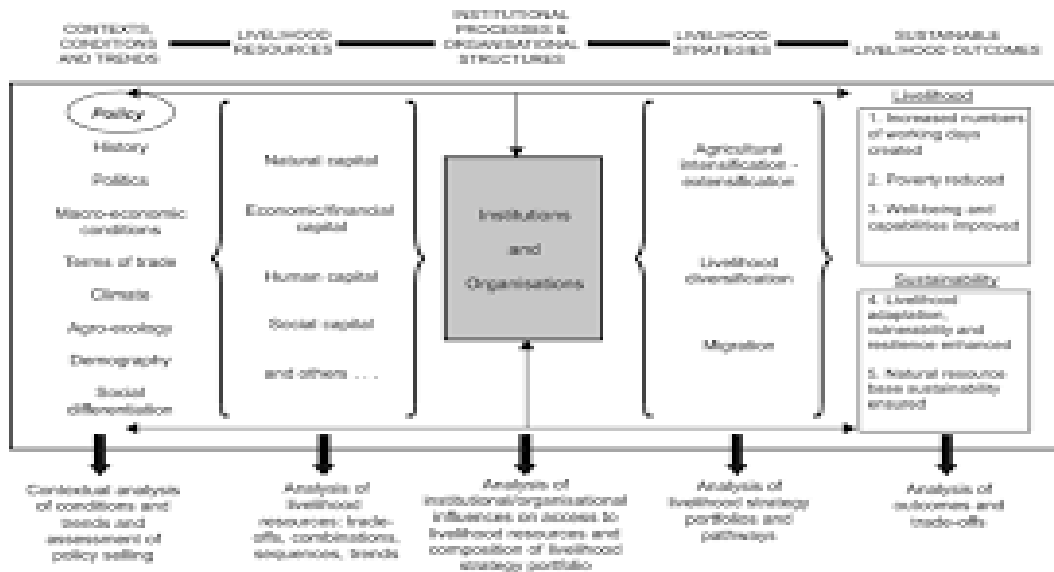
and premium towards the ideological and institutional arrangements from which they sprang.

2.5 The livelihoods approach: macro

We will be sensitive to one criticism made of the livelihoods perspective, that the focus on the individual is to the detriment of the social, especially when the latter is changing rapidly (Scoones, 2009: 181). The economy, evenly-rotating in a groove over centuries, has been elevated from being a descriptive device for sectors like Indian agriculture to a normative status in the CE recently being promulgated (Heshmati, 2016). China is an example where the concept is being actively implemented across production and consumption and through micro and macro channels. The criteria are low consumption demand and efficiency in production. The latter refers to minimizing primary energy and raw materials inputs. Indeed, models of the circular flow of activity have been used to pin down slippery concepts like sustainability. In the formulation of the philosopher Peter Ulrich, sustainability is equivalent to viability in an economy that reproduces itself from year to year (Thieme, 2011).

Also supportive of our field study, the effect of premium subsidies persists over time. In that case, the structural effects need to be followed closely (Lusk, 2016). The author studies the distributional effects of the subsidized crop insurance programme in the US. For the economy as a whole, the removal of the premium crop insurance subsidy reduced the producer surplus and the consumer surplus. Only the welfare of taxpayers increased. It is well known that consumers of food in general will be unaware of the cost of subsidies in the form of higher taxes. The pros and cons of subsidized crop insurance are as follows. Private providers would demur as the risks faced in agriculture are unique and largescale. They are required to supply insurance to demanders whose characteristics trigger all the danger signals in their training manuals. They cannot deny insurance nor raise premiums. On the other hand, a less-than-enthusiastic response to government-sponsored insurance on the part of farmers is due to a long exposure to numerous other governmental schemes, both general and those concerned with disaster mitigation. Indeed, and endorsed by our experience in Bundelkhand, the wariness about state-sponsored insurance packages might stem from lip service paid and no delivery made in the case of other offerings in the past. Also, if the subsidy in this case follows the fate of other subsidies, farm households already richer than nonfarm households, would additionally benefit. We also report another study that takes a rigorous neoclassical model to the US, a natural hunting ground for applications of that methodology, and finds anomalies in the results (Du, Feng & Hennessy, 2016). Farmers decline contracts that both increase and stabilize expected income. An optimism bias prevails. It could never happen again or not happen to me. Then, disasters are regarded as rare events and best left uninsured.

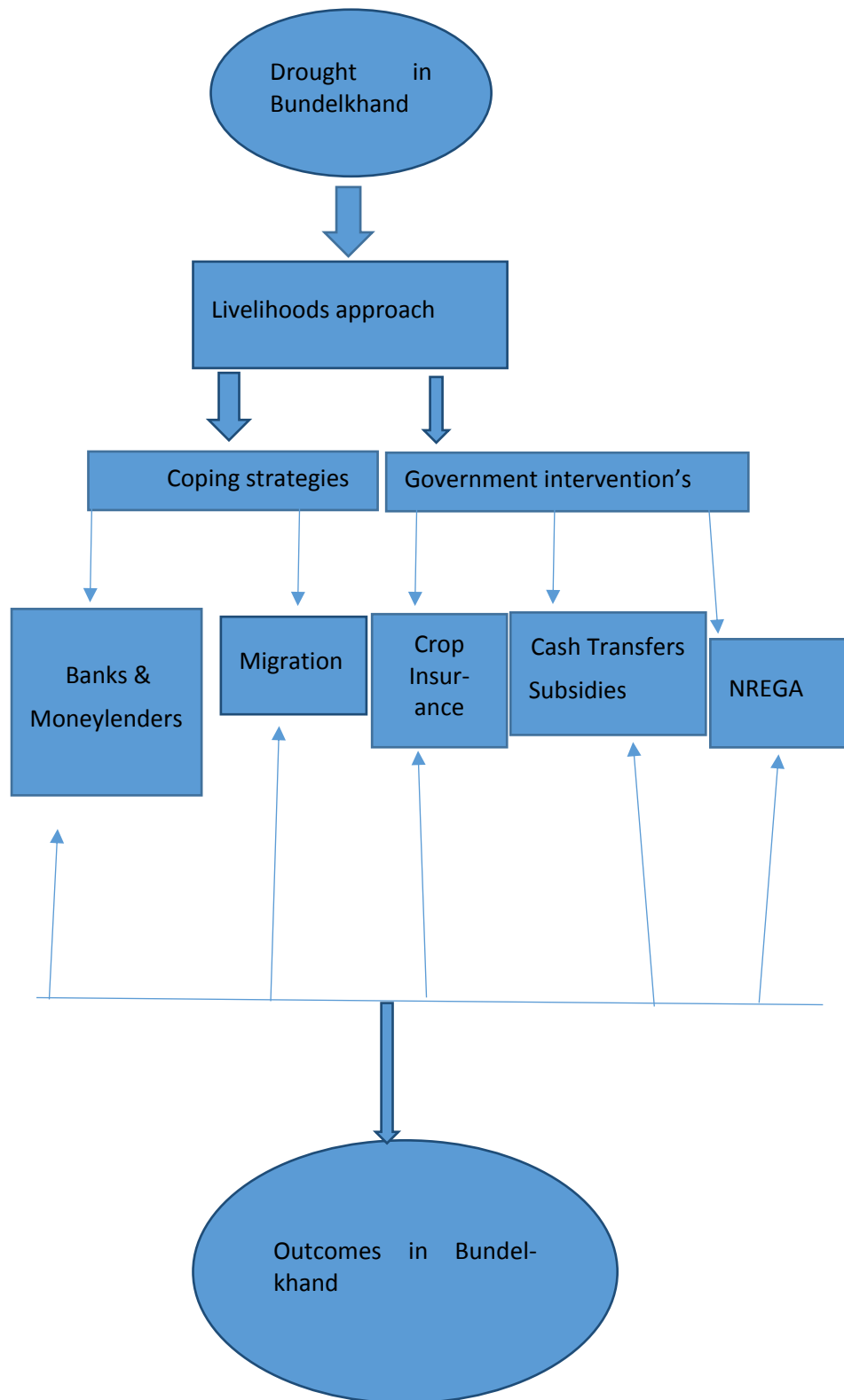
The connection between the various concepts is captured in the following well-known figure from Scoones, 1998.



2.6 The Analytical Framework

The logical sequence of the study is captured in the following chart. The drought in Bundelkhand is looked at with the lenses of the Livelihoods approach. The drought tips already vulnerable farmers into destitution and misery. Coping strategies are a mix of private and public. The longest private enterprise has been moneylenders. However, coming under the purview of a Central Government Act, moneylenders cannot set prices and quantities freely. Next, with independence came nationalised banks with their social mandate to bank the unbanked. Recently, innovations under the aegis of the Centre are being motivated to increase the quality and depth of the penetration into the Indian countryside. Insurance companies are induced to enter rural habitats but while the pull of large numbers is strong the business is not viable. Crop insurance is mostly State-sponsored. Government intervention consists notably of NREGA which is buffer stock operations in able and willing labour. Other measures are direct cash transfers into bank accounts, targeted subsidies, and so on.

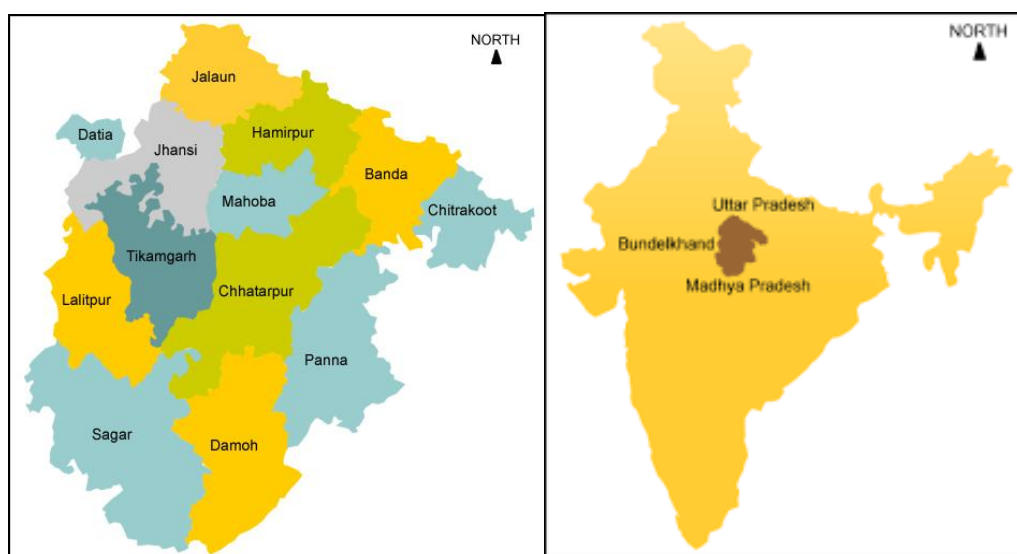
The perceptions of and choices between these strategies is not common even between identical classes across districts. Explanations and outcomes vary.



Chapter 3: Coping Strategies in Bundelkhand

3.1 Introduction

In this chapter we discuss two coping strategies during a drought in one of the poorest regions of the country. More than one publication has labelled this region the worst place to be a farmer. With agriculture as



their primary source of income how do the farmers survive a natural calamity?

3.2 Background of Bundelkhand Region

Image 1

Bundelkhand is a hilly region located between two States in Central India. The region, spread over 70,000 sq. km of 13 districts in Uttar Pradesh and Madhya Pradesh, has experienced continuous droughts between 2003 and 2010, floods in 2011, a late monsoon in 2012, and deficit rain in 2013, and a second spell of drought starting in 2014, which continues till date. It consists of seven districts of UP and six districts of MP. About 79.1% of the Bundelkhand population (18.3 million as per Census 2011) live in rural areas and more than one-third of the households in these areas have been identified as BPL. A lacklustre agriculture and lukewarm industry do not bode well for the future. According to a *Swaraj Abhiyan*, 2015, survey in Bundelkhand, 2015, around 71% of households reported indebtedness, 40% of households had resorted to distress sale of cattle, 27% had to abandon cattle, 27% had to mortgage/sell land and 97% said

their debts had increased as a result of the droughts (Dogra, 2016, is a recent eloquent testimony to the magnitude of the disaster).

To elaborate, the reasons for “Livelihood (in) Security” include the following (Development Alternatives, 2016). Fundamentally, agricultural productivity is low because of the increase of the population on given land and no technical change. Secondly, livelihood options are meagre. Industry consists of the mining of stones, sand, gravel, with rudimentary technology. The dense forests of Bundelkhand are vanishing as a result of the natural ecology of overgrazing and fuel collection. The rapacity of the pair of feudal lords and government functionaries has played no small part in this denudation. Hitherto, the forest was the locus of medicine, fuel, food, crafts and cottage industries. The evaporation of lush green pastures has dealt a fatal blow to livestock rearing, another traditional occupation of the people of Bundelkhand. Approximately 60% of the population is workers. Of these workers, almost 60% are employed in the agricultural sector as cultivators and agricultural labourers.

Financial burdens have mounted due to loans taken from the local moneylenders, State-owned banks, and from friends and relatives. The farmers are under constant pressure to repay their loans and, with paltry savings to do so, the morass of debt gets thicker. A tipping point is reached as debts reach a mass when farmers commit suicide. NCRB data and newspaper reports agree that more than 3,200 farmers have killed themselves in the last five years in Bundelkhand. According to ActionAid, a global non-government organization working on poverty and human rights, between 1 March and 23 April 2016, 217 farmers committed suicide or died of shock in the seven Uttar Pradesh districts of Bundelkhand after untimely rains damaged their crops. When farmers commit suicide, their debt is transferred to their families.

3.3 The Bank-Moneylender dynamic

The finance capital of the title of this section is complex because both parties have been brought under the umbrella of state scrutiny. We offer an Indian version of Karl Polanyi’s “double movement”, although the universal category “financialization” could apply to generalise across societies. One on one hand, a market orientation connotes the stepping back of the state. On the other, financialization has meant a brutal hollowing out of the innards of the social fabric by the state to be filled with financial entitlements. Thus, commercial banks are expected to earn profits, at least over the long haul. The government will not act as Lender of Last Resort across all states of the world and forever. At the same time, the Government of India, in recent years, has pursued financial inclusion by universalizing “no-frills” accounts, legislating bank accounts for every citizen, on a timetable. This inclusion is formal. Substantively, neither income or assets nor plans concerning either back the items in accounts. Moneylending is moving from informal to quasi-informal as the government sets price and quantity guidelines.

Once again, formally, platforms for redressal of grievances by poor farmers exist. The reality in the present, particularly under the environmental cycles of deluges following droughts, is a mirror to the past. Price gouging and quantity rationing is the order of the day in money lending.

In Bundelkhand, the banks and the moneylenders often compete with each other. Moneylenders are members of the community and private information is symmetric. The moneylender knows the characteristics of the villagers and the portfolio of the moneylender, in turn, is known to everybody. The infinite horizon of abstract financial models is not without relevance here as lenders and borrowers can interact over time. The moneylender or two in the village are likely to collude as oligopolists. That means relatively high interest rates charged and controlled amounts lent. At the same time, perfect information implies that the terms of contracts, implicit or explicit, are flexible. Secondly, the interlinkage of markets multiplies the exploitation of the landless farmers. In this case, he is bonded both in the land as well as in the credit market. He is indebted to the landlord and the landlord-moneylender nexus, even if not overlapping, defines the ruling class dynamics in the rural countryside. Banks and bank officials are no panacea for these ills. In short, farmers are seething under the sharp increase in the prices of inputs and low output, low real income, manipulation of NREGA by traditional class enemies to which are added the contempt of bank officials. The State government responds true to form with untruths, categorising the suicides of large number of farmers as the sum of a large number of maladies other than poverty. Over 58% of credit in the region was raised at high rates of interest, ranging from 3%-8%, from non-institutional sources. Cooperative banks serviced only 7%-10% of loans, catering mainly to big farmers. The reasons are natural and universal. Their reputations and collateral are solid.

Various social activists championing the cause of poor farmers reported that only about 10% of the farmers that owed money to banks could secure legislated relief. There were instances where even farmers owed respite by law greased palms to get a certificate of debt clearance. A bank manager reported that only 15% of afflicted farmers sought relief at his window. The situation was unlikely to be different at other banks. The reason given for this meagre recourse to legal redress is that even indebted farmers renew their credit positions by approaching private moneylenders or middlemen. The tout arranges to restore the farmer as an item in the bank's ledger. The money is withdrawn all too soon and the sequence is repeated. The farmer escapes the default label and secures slight benefits like insurance. In order for farmers to acquire loans, they pay huge commissions to agents/managers for their sanction almost all the organisations connected with the business. Commission agents advance the loans to agriculturists for productive purposes against their crops without completing legal formalities. They

charge a very heavy rate of interest on the loan and a commission on all the sales and purchases in a display of flagrant extortion. Time is critical for farmers. For instance, if the head of the household is away on alternative employment, some agricultural activities are delayed. The cost of credit increases by many multiples of the actual cost. The middleman provides cash on the button without paperwork. To illustrate, the first payout for a farmer which should be a free 'passport' is greasing palms to get a KCC issued. It takes at least a month. Armed with the card, he makes the trip to the bank and is faced with processing time of not less than that spent in the first 'round'. The agent smoothens the path with the manager of the bank. The price the poor farmer has to pay is about 17% of the total credit amount and he eventually gets Rs 50,000 out of an allocated Rs 60,000. The 'frictional' cost is Rs10,000. The example applies to almost all KCC holders in the sample area. Transport and waiting costs are high because they involve a foregone daily wage. The rules and regulations of institutional credit follow a peculiar one-step forward, two-steps-backwards dance. On the one hand, the Government of India and State governments profess commitments to directing credit without frills and fancies. At the same time, the culture of security is overpowering and the set of forms to fill gets thicker and more opaque.

In each group in Bundelkhand we engaged with, the preference for bank over moneylender differed as also the system for access and repayment of the loans. The economics in the two cases is different. The commercial interest rates were low and fixed and monitoring and screening of the use of funds casual, if at all. Farmers were more or less assured of consumption and production loans but, in the event of continuous non repayment, the loan dries up and the loss is written off. A big push to banks has just been given by the Reserve Bank of India proposing a three-year transition period for microfinance institutions and non-bank finance companies to transmute into small finance banks (The Indian Express, 2016a). After, all such financial entities would comply with the norm of opening 25% of their banking outlets in unbanked rural areas.

3.4 Migration

Migration has benefits like increased remittances which not only are a source of liquidity when markets are missing and timely insurance but also, in a remittance of ideas, return projects which create jobs. At the same time, there are costs like increasing competitive pressures in the town resulting in lower wages and unemployment there. Extended migration can result in the crumbling of livelihoods and loss of assets 'back home'. An illustration of a positive outcome of migration driven by climate change is provided by a semi-arid region of Kenya (Ng'ang'a, Bulte, Giller, McIntire & Rufino, 2016). Specifically, the authors test whether coping with local resources and migration are complementary or substitute strategies. The answer is that the two strategies are complements. The remittance of earnings encouraged the adoption of even high-cost technologies like the purchase of drought-tolerant livestock.

With regard to other strategies, poorly-targeted reliefs reduce welfare and investment in employment generation tends to increase welfare. The authors concede that, in general, the verdict is ambiguous. Remittances can be spent on wasteful consumption. The exit of labour means a shortage of labour on the farms and the disincentive to adopt labour-intensive technologies. Finally, negative externalities may prevail. 'Successful' migration crowds out the development of other coping strategies. In general, the move can be permanent or temporary. It may involve only breadwinners or entire families. It can occur offseason or, in the case of a failed crop, in season. We were careful to discriminate between migration driven by climate change and the pull factors of other explanations (Kurukulasuriya & Rosenthal, 2003). In any case, the other available strategies play a role in the decision to migrate. In Bundelkhand, with little or nothing arising out of farm incomes and with the attraction of other areas near and far, unsurprisingly, entire families, along with farmers without livelihoods, are forced to migrate in search of work. On occasions, at the point of origin, money was available, there was technology, there were landlords, but no hands to till the land. Importantly, migration does not necessarily mean uprooting from the village. Thanks to improved rural infrastructure and use of motorised vehicles, people visit nearby towns for petty jobs and come back when the cows return home.

Basic push and pull factors can be distinguished. The push factors include landlessness and rural poverty, the inability to make a living on the farm or, in an extreme instance, an agrarian crisis. The pull factors include the prospect of economic opportunities and a more sustainable livelihood, hopes for improved social conditions and a better life for the family, particularly in regard to the rural youth, many of whom are unemployed or face the prospect of dimming employment opportunities at home. It is argued that a benefit that accrues to various countries of origin are the remittances returned by migrants, which can be used to alleviate poverty and even, according to World Bank economists, be used for productive investment with development outcomes (Fajnzylber & Lopez, 2007). However, these notions are choice-theoretical, based on two-sector models of town and country. The ingredients of the model are a lower wage and productivity in the countryside and relatively free movement of labour from sector to sector. Migration is welfare-enhancing. These models are oblivious to the structural forces unleashed by the advanced capitalist development process. In India, huge swathes of land are being turned over to private enterprise and millions of indigenous people are being dispossessed of hearths and homes. Increased employment using modern labour-displacing technology is not to be seen on these vast stretches of land. Instead, the land is being held, as rentals are greater than the rate of profit in industry. The vaunted high growth rate of India is, consequently, predicated on a narrower and narrower but higher and higher value base of the rich. It is jobless growth. In addition, the models ignore the extraordinarily heavy costs of migration that are borne by both by the village of origin and the migrants themselves. A cruel end to the tale in India is that when the mi-

grants return home they find their children moderately to severely malnourished (Sphere India, 2016). These costs are far in excess of the putative and oversold positive impacts of remittances. A recent multi-country study by the FAO (2016) concludes that in a situation of crisis, migration is rarely a rational response but an act of despair to escape the deterioration in livelihoods.

3.4 Chapter Conclusion

In conclusion, the 'private' or autonomous strategies of coping with drought and disaster fall woefully short of desired levels. It is unsurprising that in such grim scenarios only the state can be saviour. To motivate our next chapter, we observe that on the subject of finance and agriculture, a "long view" connects the role of the state in financially supporting agriculture in the face of the reluctance and failure of private capital to stand and deliver (Martin & Clapp, 2015). At the onset of the last century, organs of the state not only instituted appropriate financial mechanisms to support agriculture but also intervened to block the welfare-reducing role of private financial interests in the sector. In modern times, in contrast, the retreat of the state has accompanied the hard sell of financial arrangements founded on the faith of financial contracts to deliver nice social outcomes.

Chapter 4: State Intervention in Bundelkhand

4.1 Introduction

Independent of natural calamities calling for counterattack and pre-emptive strike by organs of the state, the history of successful transitions from backward agrarian to dynamic modern economies is a script written by governments with foresight and courage. The NREGA is celebrated the world over as the definitive intervention in the Livelihoods approach to the assault on poverty. We term it the money-finance tool in the kit. It is the product of two components, the average wage (the price) and the man-hours worked (the quantity). For all schemes of the sort, an increase in that multiple must match the increase in labour productivity as a measure of aggregate success. The scheme can be distinguished from other famous programmes. Cash transfers, well known in Brazil, Argentina and other countries, do not contain either component. Under conditions like regular visits to health centres, enrolment and commitment to schooling, and so forth, productivity is expected to increase indirectly and over the long haul. We call these cash tools in the policy weaponry. The force of schemes like NREGA, on the other hand, is employment on the spot from existing lists and from a pre-selected portfolio of projects. Recently, Basic Income Schemes are being rigorously conceptualised and operationalised. They are akin to unconditional cash transfers. Something similar exists in India with accounts opened for all Indians with a token sum and a one-time cash transfer with the press of a button. Note that the liability item in the ledger in the balance sheet of a bank will spring to life thereby. No corresponding entry on lending is expected. The bank is an ATM.

We have already referred to whorls of Polanyi's "double movement" in political economy. NREGA increases the responsibilities of a committed government to come down harshly on errors and distortions and to calibrate the budget in accordance with the agricultural cycle. It runs counter to the ideology of withdrawal and the expectation that the utility of poor farmers is maximised by freeing them to choose from cash provided. Secondly, we find the same tug in opposite directions with a

relatively new tool in the government armoury, crop insurance. Insurance of crops or people is a topic in Finance which is an extension of neoclassical economics over future dates and states of the world. Applied finance is a font of supernormal profits and the millions of untouched poor farmers in India offer unlimited opportunities. However, none of the axioms of that theory are fulfilled in India.

We will also investigate the efficacy of the PDS system in our chosen area although it is a physical and not a financial policy tool. The system operates through a network of so-called fair price shops where highly-subsidized food and other basics are made available. Even in the city where the level of awareness is high and the arm of the law long, discrimination in favour of the deprived has never been a success. Rich and poor will be seen standing in the queues.

4.2 Money-Finance Policy: NREGA

The conceptual foundation for NREGA is Keynes' advocacy of public works to address the extremes of a recession. The money wages to pay grateful workers would be printed by the mint and effected through financial intermediaries who record wages on one side of their balance sheets and disbursements to entrepreneurs on the other. The embellishment today would be a focus on green-friendly projects which would increase the skills and productivity of workers employed (Harcourt et al., 2013). The practice is to target workers, as in construction, that are most vulnerable in a downturn. While major projects may be unviable at a first pass, small construction projects would not be so. The determination of the wage has emerged as an issue. They are often higher than the average private sector wage and, consequently, idle hands are less willing and able there. However, the flaw lies in the absence of design. The foundation of such a scheme is the chalking out of a path that calls for the creation of an infinitely elastic demand for rural labour at a base wage not linked to the expectations of profit of private firms. Such a model can only be written by the public sector (Mastromatteo, 2011). So as not to negatively impact on maximizing the demand elasticity of labour on the part of private enterprise, NREGA workers should be compensated by wages significantly lower than their private sector comrades. Indeed, by constraining emoluments both directly (wages) and indirectly (cost of living), the scheme is designed to break the upward spiral which connects the degree of monopoly or price-setting power of industry with higher wages for workers that result.

NREGA work, in principle, is available to all volunteers. Yet, since the work is physical, undemanding of educational capital, only the very poor self-select into the scheme. This observation is an entry point to a class analysis of the political economy of the scheme (Pattenden, 2016).

It turns out that the absence of favorable outcomes and non-decreasing poverty in some States is connected with antagonistic class relations there. In contrast, in other States, which exclude our two States of interest, increasing non-farm employment has thwarted the excesses of class conflict. Indeed, of interest to us, in the States which are deficient in NREGA metrics, intra-class rivalry, meaning antagonisms between villages, is rife and based on proximity to the ruling political class. A class analysis would lead to the interpretation of NREGA as dissuading workers from migrating and, thereby, subsidizing the relations of production. From our perspective, what is critical as a measure of success is the ability of households to accumulate assets and withstand shocks over time and, on that count, NREGA has been found wanting when evaluated over the country as a whole (Das, 2016). A broad measure of livelihood security is used which consists of livelihood promotion, livelihood protection, and livelihood provisioning.

Government records show an average of 68 days of work per person per year; on the ground, many willing and able haven't worked 50 days in five years. Wages are credited to accounts of government employees and even the dead. District officials refuse to part with data; they claim that the numbers have been erased from their computers. Interestingly, government records of NREGA implementation in the region since its inception reflect a solid growth of livelihood opportunities in these districts. On an average, Rs 3100 million is spent on wages and material cost every year in Bundelkhand with close to 40,000 works being sanctioned and nearly 30,000 of them being completed. So the question of demand, implementation and completion is connected with most villages wearing a deserted look through the year with the entire working population migrating. The pull of NREGA must contend with the pull of migration. Secondly, there are very few in any of the villages in the region who do not possess job cards. Yet, barely a handful of villagers have seen their job cards! The explanation is that the cards of the entire village are in the safekeeping of the sarpanch (the head honcho of the village) or other government officers entrusted with placing the scheme on stream at the block level.

Striking a positive note, a portmanteau of public works to pull Bundelkhand out of its black hole has emerged out of limited democratic discussion (Kedia, 2009). Most of them, naturally, are concerned with water conservation and minor irrigation but also include plans for drought- and flood-proofing. The plans are designed to move beyond reactions to distress to grafting long-term plans for drought- and flood-proofing. A wonderful example of a scheme that connects with Bundelkhand's own past and future adaptation to climate change is agro forestry projects. According to an estimate, agro forestry has the potential of sequestering 1.6 million tonnes of carbon and generating more than

200,000 employment schemes at the same time. Appropriately-chosen public works act as a physical buffer against the vagaries of the weather as NREGA acts as a buffer stock of labour against the rhythms of the business cycle. The idea is to make people less dependent on the allocations of the government for NREGA. Indeed, if social infrastructure and public works are implanted in the countryside, farming becomes viable and poverty reduces. The expenditure incurred will not be inflationary because, other things being equal, agricultural productivity should increase. Private investment, in principle, would get crowded in setting up further rounds of increased investment and growth.

However, the absence of coordination of schemes and planning in general has meant that much work has to be put in for NREGA to be a truly flagship scheme. Thus, stubborn and widespread migration is precisely from areas and people that are best suited to sow the seeds of durable environmentally-friendly projects. Technical knowhow is lacking so small water-harvesting arrangements turn out to be pits that can neither store water nor be used for harvesting. In fact, NREGA expenditures on R&D, information dissemination and communication have gone down.

4.3 Cash Policy & Subsidies

The centre's much-celebrated DBT programme promises to electronically transfer welfare amounts like old age pensions, students' scholarships and even daily wages under the NREGA into people's bank accounts. However, transfer of benefits is easier said than done. This is due to the absence of banks in certain areas across the region. Despite DBT, the penetration of cash kiosks across the length and breadth of the country is far from complete. As a trend, the poorer the region, the more severe the shortage. Conversely, the cycle is that poor areas are also the regions where maximum beneficiaries live, making the need for banks more acute. The decades-old bilateral bargain of the spoils between contractors and gram panchayat officials now includes officers of cooperative banks. Often, villagers say, they are convincingly persuaded not to visit their bank branch. In possession of a clutch of job cards, the sarpanch and contractor, hand in glove with bank officers, liquidate the cash and disburse a portion of the payments to the clients who are kept in ignorance of the facts. In Niwadi block, a government school teacher and a dead man were on the NREGA muster rolls and withdrawals were regularly made from their accounts. Feudal and exploitative relationships with gram panchayat officials and contractors are deeply entrenched and ensure that even in-your-face malfeasance is never brought to public scrutiny. The villagers are kept in the dark about the institution of the gram sabha which is empowered to regularly engage in 'social audits'

to make sure that government schemes are implemented in letter and spirit. All villagers will recount episodes of compulsory payments up to Rs 5,000 as grease to the wheels of the movement of the sarpanch and the rural engineering services engineer to get, say, a permitted well to be dug on their land. The MP scheme of local development led by master plans written up by almost 60,000 villages in the state is being mimicked by other states. However, the plans ring hollow in the villages in Bundelkhand where few have any say in decisions taken by the panchayat or the district administration.

The farm subsidy programmes in Madhya Pradesh are driven by patronage politics and have completely subverted the objectives of these schemes. The overwhelming majority of the recipients of the largesse have been large and rich farmers, most of them also linked to the ruling political party. On the plus side, an effective subsidization programme in our territory that bears on the tension between individual and collective protection is the construction of subsidised ponds in Bundelkhand (Prasad, 2016). The problem of stemming the outflow of rainwater and its storage has, naturally, been an ancient problem for the people of Bundelkhand. The solution of the Chandela rulers was appropriately royal. Large lakes and reservoirs were built. In recent times, in contrast, the orientation has changed to farm ponds. These are individual assets as against the earlier community assets. The government drafted and implemented a scheme under which a 50% subsidy was offered to farmers for the construction of these ponds. The estimated cost of a pond which could irrigate a one-hectare farm was Rs 1.05 lakhs. The farmer would, then, have to invest half this amount. At the same time, the farmer was allowed the choice of hiring the machine to construct the pond himself. In April, 2,000 ponds were sanctioned and 1,900 were ready before the monsoon. Indeed, many farmers used additional funds to construct larger ponds. Some have been inspired to venture into the rearing of fish and innovating with other crops. Bundelkhand is a pulses bowl which requires one or two irrigation spells after planting. With rain following a drought, the farmers are poised for a good rabi crop of *chana* (chickpea), *masur* (lentil), and *matar* (green peas). Some have advocated a return to the past in the revival of the thousands of tanks constructed by the royalty since the 10th century (Gopal & Marothia, 2016). In this specific instance, the Supreme Court of India has pronounced that the wisdom of the ancient rulers trumps the ineptitude of the modern technocrats!

4.4 Crop Insurance

Recent studies are a mixed bag of results for both macro insurance and micro insurance. As an illustration of the former, Borensztein, Cavallo and Olivier, 2016, establish the attraction of governments floating CAT bonds to be traded in global markets. The micro support of Cai and Song (2016) is based on the choice of insurance by farmers independent of risk attitudes and subjective probabilities of natural disasters. Instead, an experimental game is repeatedly played with a group of

farmers in China. A study by J. Varadan and P. Kumar, 2012, on the results of crop insurance in the case of rice in the State of Tamil Nadu is salutary in its conclusions. The authors claim that the scheme has lowered production risk and has given a fillip to crop specialisation. In addition, farmers have been oriented towards using high-value inputs. Returns from farming have been augmented as a result. Indeed, the Government of India also subscribes to the universal view that in situations of “catastrophe”, the government must be the “reinsurer of last resort” (Government of India Report, 2007: 42). These low-probability, high-cost events are generally excluded from standard hazard insurance policies and so catastrophe insurance requires a special treatment. When probabilities and likelihoods do not exist, deterministic sums must be collected/offered.

In contrast, J. Duncan and R.J. Myers, 2000, “in their insurance model, show that in the event of extraordinary shocks, the premium increases without bound, the coverage of farmers falls and, beyond a point, the relationship between insurer and insuree collapses. In the event, reinsurance will have to be subsidized if farmers are not to exit the market. One of the biggest critics of crop insurance is S. Ryan Isakson, 2015, who shows that crop insurance may have the opposite of desired effects by worsening rather than reducing the distress of small farmers. Insurance schemes scaled to environmental shocks have played a positive role in dispensing monies under stressful conditions. Yet, as N. Peterson, 2012, has observed, the logic of this device might open up fresh risks for farmers and aggravate their thralldom to non-insurable risks. Their net poverty tends to increase. He offers four reasons for his thesis. Farmers would need to increase their borrowing to buy high-end inputs, consistent with the scheme. On that front, they would be worse off with a shock of sufficient magnitude. Secondly, while the instrument is a financial device, it might increase the likelihood of crop failure coming from climate-change events. The reason is the push for agricultural modernization over localised means of production. The adoption of modern technology and insurance products are hand in glove. However, the adoption of contemporary agricultural techniques flattens the contours of traditional agricultural landscapes. The unique biodiversity that underlies the relative immunity of centuries-old crop systems to natural calamities is lost (Holt-Giménez, 2002; Rosset et. al., 2011). It is true that modern varieties of seeds like transgenics and hybrids have a limited genetic makeup designed to increase productivity in specific contexts which include drought. However, this genetic mix constructed in a laboratory implies that these seeds are not flexible like traditional seeds. Therefore, they are less likely to offer the extreme malleability to large-scale environmental variability that is expected with climate change. In addition, age-old mechanisms to manage diversity and intercropping underscore the toughness of traditional agricultural systems in comparison with their modern substitutes (Holt-Giménez, 2002; Mercer et. al., 2012; Wilkes, 1992). Even in the event of success of a financial instrument, minimizing the risk of reneging on debt is not the

same as increased output per acre of land. In addition, farmers are exposed to economic risk. The growing revulsion towards agriculture fuelled by the indebtedness of farmers is driven not only by diminishing returns to increasing agrochemical inputs on land but also by the sharp fluctuations of world prices. Small farmers are in no position to bargain hard with sellers of inputs, buyers of commodities, and other coalitions of market actors. Also, as D. Carey, 2009, shows in his narrative of the Green Revolution in Guatemala, the capacity to transit from agrochemical dependence to agro-friendly technologies is a luxury for capitalist farmers who can suffer short-term losses for long-term gain. On the other side of the class divide, farmers are trapped in a tightening pincer of accumulating debt to support increasingly unviable agricultural technologies. Insurance is a 'demand' device and is innocent of 'supply' elements like escalating input costs or increasingly turbulent world output prices. Indeed, vulnerable farmers may not be spared the increase in premiums as time goes by. Peterson prognosticates that premiums will increase alongside climatic reverberations. The vicious circle is that once farmers adopt the interlinked gamut of modern technology and agricultural insurance, they are likely to discover that the protections are unaffordable when needed most."

The *PradhanMantriFasalBimaYojana* (PMFBY) is the new crop damage insurance scheme that has been approved by the Union Cabinet in January 2016. It will replace the existing two crop insurance schemes, the NAIS and the Modified NAIS. The new scheme is expected to come on stream from the kharif season beginning June 2016. The scheme would embrace kharif and rabi crops and annual commercial and horticultural crops as well. The premium has been calculated to a ceiling of 2% of the sum insured for kharif crops. For rabi crops, the premium could rise to the extent of 1.5% of the insured sum. The premium is proposed to be 5% of the principal for annual commercial and horticultural crops (Business Standard, 2016). The remaining share of the premium will be borne equally by the Central and respective State governments. There will be one insurance company for the whole state. Private insurance companies will be roped in along with the AIC to implement the scheme. Apart from yield loss, the new scheme will cover post-harvest losses also. It will also provide farm level assessment for localised calamities including hailstorms, unseasonal rains, landslides and inundation. According to the terms of the scheme, the use of remote sensing, smart phones and drones for rapid gauge of crop loss is compulsory. The claims process would be hastened. Within the next 2-3 years, the scheme aims to bring 50% farmers under its ambit. The settlement of claims will be hastened for the full sum assured. Around 25% of legitimate claims will be credited directly to farmers' accounts. No ceiling on the premium nor floor on the sum insured is envisaged.

The coverage of the crop insurance scheme to date is anything but encouraging. In Uttar Pradesh is between 7 to 10 % only. However, the coverage in Bundelkhand, propelled by desperation, is around

30%. More than Rs 2500 million in rabi 2014-15 and around Rs 1800 million in kharif 2015 have been distributed as claims benefitting around 3.34 lakhs and 2.16 lakhs farmers respectively. The penetration of insurance over the country still remains paltry and the government is embarrassed. The latest evidence is that only 25.30 million farmers insured their crops under the flagship scheme of the Prime Minister as against 36.90 million in 2014-15. The response is illuminating in the Centre-State dynamics in India. The Centre is critical of the State governments for dragging their feet on implementing the scheme claiming ambiguity about coverage. Secondly, areas identified for insurance in the Central plan are subjects of dispute between the States and insurance companies. By reducing the farmers' contribution to the premium to a paltry 2% for kharif crops and 1.5% for rabi crops the Centre expected to extend the insurance scheme from the present 26% to 50% of the potential beneficiaries over the next 3 years (Financial Services Monitor, 2016). The States claim that farmers are unenthusiastic, the Centre holds that farmers are open to the innovation. The latest move is to allow micro-insurance agents to solicit and market government crop insurance schemes (The Indian Express, 2016b)

4.5 Chapter Conclusion

It turns out that a fully-specified NREGA must include a dynamic small banking sector as well. In that, we turn to the insights of the private strategies of the previous chapter. If fully deployed as a counter-cyclical measure, NREGA would act as follows: Fiat Money-Bank Finance increases during a downturn and can curb a deflationary spiral. During an upswing, NREGA workers would be employed by the private sector at a higher-than-minimum wage. Microfinance has a limited role to play in the finance capital of agriculture. It is playing a diminishing role for reasons outside of the scope of this thesis. Of relevance to us, is that the investments of scale and scope spelled out for situations of agrarian distress are outside the purview of the mandate of microfinance. Microfinance institutions are NGOs and, therefore, cannot be part of monetary policy. One thesis is that the focus on crop insurance is misdirected (Development Alternatives, 2016). For instance, government money could have been better spent on defraying some of the high costs of micro-irrigation schemes. If, in fact, the irrigation technologies are efficient, the use of water as an input goes down, the productivity of the land goes up and the need for crop insurance, to that extent, is reduced.

Chapter 5: Field Research Outcomes

5.1 Introduction

The participants of the exchange were the small and medium farmers, other village representatives, and members of the local NGOs, in a desperately-poor segment of India. These conversations took place in the districts of Jhansi, Tikamgarh, and Lalitpur which is part of the Bundelkhand region in Northern India.

5.2 Research Process

The discussion was structured by a questionnaire which outlined the basic objectives of the research in some detail. In order to converse freely with the farmers, two local NGOs, *Pragati Rath* and *Parmath Sevi Sansthan*, were engaged. The questionnaire was translated into the local language, Hindi. The facilitator could, thereby, communicate effectively with the groups, making appropriate modifications when required, so as to extract the maximum information.

The NGOs themselves were unaware of the extent of dispersion of the homes and holdings of the small and medium farmers. Even the village chief was vague about it. Our efforts were directed, then, to actively forming small groups. It was not too difficult to have the discussions in groups as the farmers congregated for other activities naturally. During the discussions, the additional payoffs included other farmers and members of the village joining the meetings. The proceedings started with a warm and elaborate welcome. The introduction to the study was simple, yet comprehensive. The explanation of the rules was clear. The process followed.

During the elaboration of the rules, the following point was reiterated. Participants were told that there were no right or wrong answers. Differing points of view were welcome.

The sessions were taperecorded with the narrative of one person at a time. The sessions were interspersed by the interventions of the moderator, when called for, gently pushing a point along or teasing another response.

We were resolved to make the process mutually beneficial. Information about the various ways in which water could be saved, in ponds, drip irrigation, the manner in which organic manure can be prepared, the process of accessing crop insurance schemes and finally, though only in some villages, the basic provisions of the RTI Act were provided. This information was given at the end of the discussion and the day conclud-

ed with heartfelt thanks to all the participants for giving their time, knowledge, and cooperation.

5.3 Research Outcomes

The results of our investigation are answers to the following questions.

- Outcome 1: the average amount spent on the land altogether in both the rabi (crops sown in ‘winter’, mid-November, and harvested in ‘spring’, April-May) and kharif (crops cultivated and harvested during the monsoon, June-October) seasons and the quantum of profit made from the sale of the crops
- Outcome 2: The loan dispersal and repayment system involving banks and moneylenders, the reasons for borrowing, the mean time till debts are cancelled, and the experiences of the farmers
- Outcome 3: The number of farmers that have availed of crop insurance and the reasons for their demand, the reasons for those who went the other way from the margin of choice, and, of the insurees, the record of payment of premiums
- Outcome 4: The rate of migration in the area, the location, the type of work, and the remuneration earned
- Outcome 5: The operationally of the NREGA, the number of days the farmers receive employment, and the period of time by which they receive their payments
- Outcome 6: The functionality of the PDS (Public Distribution System), the number of farmers who received any special provision during the drought period
- Outcome 7: The various other coping mechanisms during periods of drought

5.4 Research Findings

5.4.1 Physical, financial, and social characteristics of Bundelkhand

Before we answer our first question, we depict the range of marginal to small to medium farmers (Chapter 1) we engaged with.

Table 5-1

Group Number	District	Block	Number of Participants	Details of Participants
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1	Lalitpur	Talbhet	4	1-2 acres = 4 farmers
2	Lalitpur	Talbhet	4	2-4 acres = 4 farmers
3	Jhansi	Babina	10	1.5 acres=2 farmers 2 acres=1 farmer 4 acres=6 farmers 3 acres=1 farmer
4	Jhansi	Babina	10	1-2 acres= 4 farmers 3-4 acres=2 farmers 4-6 acres=4 farmers
5	Jhansi	Orcha	9	1-2 acres = 6 farmers 3-4 acres= 3 farmers
6	Jhansi	Orcha	4	1-2 acres = 4 farmers
7	Jhansi	Khajarahah	3	1/2 acre=1 farmer 2-4 acres= 2 farmer
8	Jhansi	Khajarahah	7	1-2 acres=7 farmers
9	Jhansi	Babina	10	1-2 acres= 8 farmers 2-4 acres=2 farmers
10	Jhansi	Babina	5	1-2 acres= 5 farmers

11	Jhansi	Babina	7	½ acre = 2 farmers 1-2 acres= 5 farmers
12	Jhansi	Khajarah	5	1-2 acres= 5 farmers
13	Jhansi	Khajarah	17	2-4 acres=12farmers 5-4 acres= 5 farmers

Proceeding to our first topic, the cost-benefit analysis of farming in our sample,

Outcome 1: the average amount spent on the land altogether in both the rabi (crops like wheat) and kharif (crops like corn and monkey) seasons and the quantum of profit made from the sale of the crops

Table 5-2

Group no.	Block	Amount Spent (in Rupees)	Profit (in Rupees)
1	Talbhet	4000 per acre-Kharif 6000 per acre-Rabi	4-5000
2	Talbhet	8,000 per acre-Kharif 10,000-Rabi	8-10000
3	Babina	8000 per acre – Kharif 10,000- Rabi	- (no savings for 3-4 years)
4	Babina	6-7000 per acre – Kharif 6-7000 per acre-Rabi	6000
5	Orcha	10,000- Kha-	10,000

		rif 12,000- Rabi	
6	Orcha	3000- Kharif 5000- Rabi	5000
7	Khajaraha	6000- Kharif, 8000-Rabi	3000
8	Khajaraha	10,000- Kha- rif 12,000- Rabi	2000
9	Babina	5-6000 per acre	6,000
10	Babina	5000 per acre- Kharif 7000- Rabi	20000
11	Babina	5000	- (no crops for the last 4 years)
12	Khajaraha	12,000- Kha- rif. Rabi- 10,000- 15,000.	2-400 prof- it.
13	Khajaraha	5000- Kharif. 15000= Rabi.	5000

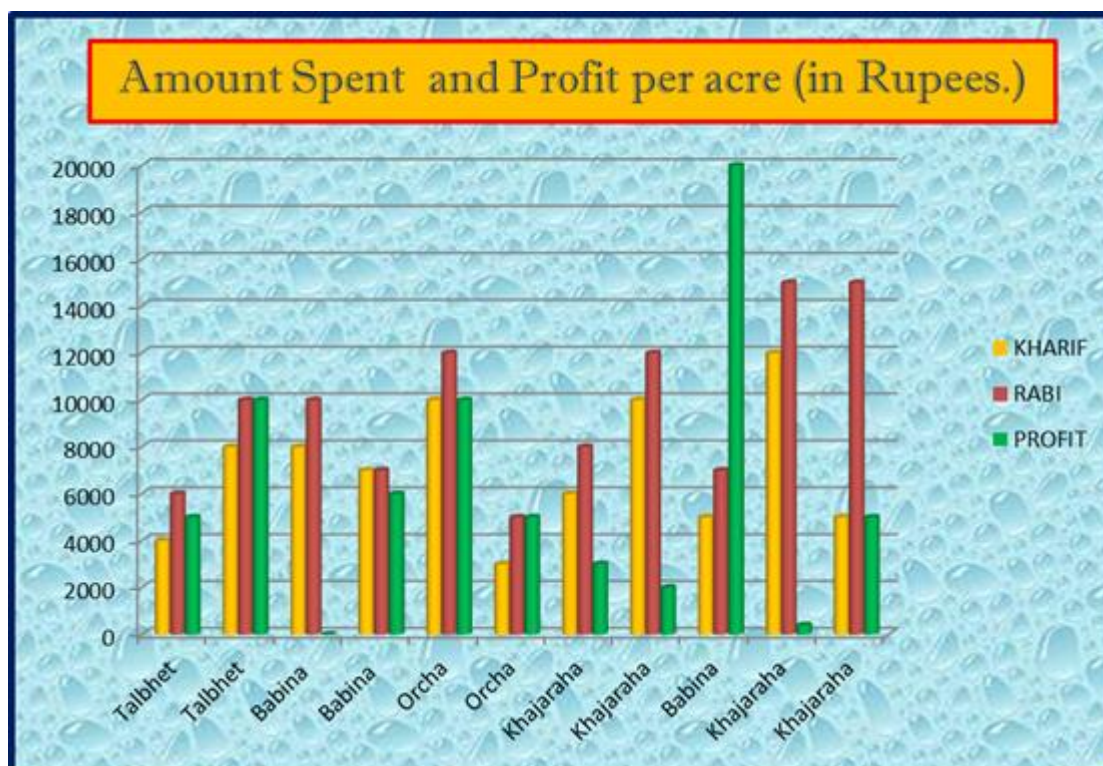


Figure-1

The amount spent on the crops is broken up into different costs. The first and the largest is for diesel which takes up 1/4th of the cost and which powers the irrigation pump set which delivers water to the crops. The cost of seeds is slight. On the other hand, the bills for fertilizers and insecticides put the farmers back as it takes up 1/3rd of the cost. In one group, the farmers informed us that their fields require 7-8 litres of water per acre for their crops to grow. The costs and investments increase with the size of landholding.

The severe drought has led to depleted ground water levels. A study by the Delhi-based National Institute of Disaster Management in 2014 pointed out "that in more than 60% of the villages of the Bundelkhand region, access to water is available for only a month in the year". Ground water over utilisation is predominant and open dug wells provide much needed water for irrigation and drinking. A report released by *Swaraj Abhiyan* in October 2016 said "40% villages in the Bundelkhand region of MP are left with two or less functioning handpumps". According to the Uttar Pradesh government, its Bundelkhand districts lost 70% of the rabi crop due to the drought this year. In some of the areas, the poor subsist on drops of water from February/March to the end of June. Wells and hand pumps dry out in the beginning of the summer or even before the end of the winter, reports Oxfam, Lucknow, in a document titled 'Drought and Livelihood in Bundelkhand'. Power relations cleanly define access to electric power: the poor subdivide into those who do not receive regular power and those who experience

frequent power cuts. The power situation is dismal with the farmers receiving an average of only a few hours of power each day.

Coming to profits, the farmers mostly make incremental gains or break even. The adequate profits on occasion are eaten up by the rising costs of all the agricultural inputs, household consumption items, and maintenance of various assets such as irrigation equipment and equipment for spraying pesticides. The farmers who earn rupees only marginally above costs incurred are finding it more and more difficult to make other ends meet. They cannot afford to send their children to school, cannot pay for medical expenses and treatment for their family, and find it difficult to pay for household consumption. In group number 3, the farmers reported that, for the last 3 years, they have experienced severe water problems and this has affected the cultivation of their crops which has led to almost negligible savings on their part. The same woeful tale was narrated by the members of group number 11. The farmers have found it impossible to cultivate their crops lucratively due to the lack of adequate rainfall for the last four years. Crop failure has been the result.

5.4.2 The Bank-Moneylender dynamic

Outcome 2: The loan dispersal and repayment system involving banks and moneylenders, the reasons for borrowing, the mean time till debts are cancelled, and the experiences of the farmers

In all the groups the farmers admitted to taking loans of various amounts from both banks and the moneylenders. They proffered the stoic proposition that without loans life could not go on. In each group, the preference for bank over moneylender differed as also the system for access and repayment of the loans. In two groups all the farmers took their loans only from the banks. The loan amounts also differed based on the need and requirements of the farmers. The bank or moneylender would charge an interest rate of 10% on each loan. The loan had to be repaid within 6 months. The maximum grace period was the end of the year. Otherwise, the interest rate would increase. Some incentives were offered. If the loan was repaid within 1 month no interest rate would be charged. In one group, the farmers were given a loan waiver of Rs30,000 on an initial loan between Rs1-3 lakhs. A revolving fund system evolved in case the loan was not repaid. Some moneylenders had different schemes of rates of interest such as an interval, 7%-14%, and a point, 5%. However, the timetable for repayment and the incentives remained standard across all moneylenders. The final way in which the farmers would repay their loans was post harvest. Their land was held as collateral and after the harvesting the crops they could square their debts from the sale of the produce.

The reasons for which the loans were taken varied. They were mostly related to work on farms and, therefore, for tractors, diesel, pumps,

seeds, and fertilisers. In one group, sharply affected by the drought, the loans were taken for water tankers. The water was intended for their fields as well as their homes and to combat disease which had hit a few families in the village. The farmers usually repaid the loans on time either within 6 months or before the end of the year. However, we did find some small holders who had borrowed a year ago and still not repaid their loans. There was one group in which only 10% had repaid and 80% had not repaid. Yet another group did not approach either banks or moneylenders.

It is common for bank officials and agents to take a 5%-10% "commission", a bribe, to arrange a year's crop loan or long-term loans for capital investments such as bore wells and tractors. After paying bribes for loans and premium deduction for crop insurance, even in a good year only crumbs remain on the table (Bera, 2015). While the agrarian distress has shattered the hopes of smaller peasants, even the big farmers are at a loss, many engaging in distress sale of grain and cattle. The qualities of grain get progressively inferior and the possibility of their sale, therefore, gets more and more remote. The area under cultivation has shrunk and consequently output of major crops has fallen sharply.

5.4.3 Crop insurance

Outcome 3: The number of farmers that have availed of crop insurance and the reasons for their demand, the reasons for those who went the other way from the margin of choice, and, of the insurees, the record of payment of premiums

In all the groups, the farmers had more or less the following response to crop insurance: They were, by and large, not aware of such a scheme. To be more precise, they had heard of the scheme but had not sought any further information regarding it. A few had approached the local bank and inquired about it but the officials either said they had no time or they were off duty or directed them to other desks who were equally unhelpful. Now, the scheme is advertised over the radio but the farmers cannot be assumed to have generalized access to the sound bytes at times convenient to them. The advertisements are far from user-friendly. They are not simple step-by-step guidelines. There are also posters of the schemes but pasted on national highways far removed from the villages. The distinction between information and its grasp and digestion made in the earlier chapter applies directly. Class considerations always intrude. The expropriation of knowledge capital is the latest form of exploitation of the ruling class over the ruled.

There was, however, one group which had applied for the scheme and even repaid the premium amount. They were medium farmers with up-to 4 acres in agricultural holdings and more than Rs. 20,000 in savings. We were encouraged that they planned to plough back the insurance money into agriculture. However, the problem of access to water per-

sisted. The new national crop insurance scheme of the Central Government has an interest rate of 2% as compared to 14% in the previous scheme. However, one group of interested farmers admitted that they do not have the adequate financial resources to pay even the current rate. Evidence of this can be seen in the Table above.

The need for unconventional government crop insurance policy is borne out (Libich & Macháček, 2016). The government should provide loans based on the farmer's income (the outcome of the harvest in our case) as an illustration of an ICL rather than a nonrepayable subsidy. The efficiency results in connection with the Livelihoods framework comprise of so-called behavioural efficiency which includes occupational choice, and sustainability in the form of inter-generational accounting efficiency which simply means that insurance schemes do not collapse.

5.4.4 Migration

Outcome 4: The rate of migration in the area, the location, the type of work, and the remuneration earned

Even the small-holding farmers that break even or make a modest profit, still migrate to keep their farm lands operational or to maintain household consumption or repay loans. The proportion or level of migration differed between the groups. In group number 1, 2, 3 and 5, 1 person from each household had migrated. In groups 4 and 11, about 500 people and in group 4, 200 families had migrated. In group number 6, about 80% of the village had migrated. Yet, we find a group wherein only 7-8 people have migrated, another where only 3-4 people have migrated and finally one group where 2 people have migrated.

The places they migrate to range from the neighboring villages, the nearest town (Babina, Talbhet), the first major city (Jhansi, Gwalior), the capital New Delhi, and the financial capital Mumbai. The various jobs they undertake are in construction, a driver of a vehicle, a factory worker, a daily wage labourer, a lift repairman and agriculture-related work. The money they receive from such occupations are Rs7500 per month as a lift repairman, Rs 300 for construction, Rs 400 per day for daily wage labour, Rs 200-400 for working in a factory. In one group Rs 8000-9000 per month flowed in for daily wage labour, in another group Rs 250-300 for construction. However, these wages usually get eaten up by house rents, daily living and other expenditures and very little gets sent back to the village. This is especially the case in big cities such as Mumbai and Delhi. Another structural chord can be struck with rural-urban dynamics. The welfare-enhancing role of two-sector neoclassical models are of limited help because the town is already known not be the promised land. Amenities like accommodation and amenities are far from guaranteed and employment is always precarious. However,

choices in the countryside evaporate with crises. Informal labour in the town increases. Below the radar of state scrutiny, the informal wage goes down and with increasing prices of food and services, the destitution of the migrants goes up.

Migration is coercive in Bundelkhand and a by-product of the drought conditions. As per a government estimate made in 2015, about 6.2 million people have left Bundelkhand over the past 15 years, reports Ashish Sagar of a Banda-based non-profit organisation, *Prawas* (Down to Earth, 2016). In 2016, New Delhi saw an unprecedented rise in the number of migrants from this region. Scores of people have braved it from villages across the 13 districts of Bundelkhand bordering the UP-MP border, to Delhi. As a result, the demand-supply balance in the informal labour market has turned decidedly lopsided in disfavour of the migrants. The forecast is a doubling at least of labour 'exports' into the neighbouring prosperous Delhi, Haryana and Gurgaon and the consequent sharp lowering of the average wage (Sphere India, 2016). This year, in contrast to the last, the labour market is demand-constrained. Migrants say it is a stroke of good fortune if their search results in a match with an employer. Given the desperate straits, a few migrants concede that they do not reject an offer of a daily wage of Rs 300 even though it is lower than the legal minimum wage. Sometimes, the contractor recruits labourers and employs them to work at an industrial site where they are paid Rs 240 per day. For the government at Delhi, the minimum wages for unskilled, semi-skilled and skilled labour are Rs 368, Rs 407 and Rs 447 per day, respectively. In short, migration in Bundelkhand is the result of extreme distress (Hafeez, 2016).

5.5.5 The NREGA

Outcome 5: The operationality of the NREGA, the number of days the farmers receive employment, and the period of time by which they receive their payments

The NREGA is often the failsafe for the farmers in case of any irregularities faced during farming. However, the reality is quite different when it comes to receiving work and, most importantly, the wage. The amount of work and money received for it differs across groups but what is critical is the receipt of the money within the legislated 15 days. In groups 3 and 11, it was within the 15 days but in the case of groups 8 and 12, it was after 15 days. In the instance of group 13, it was between 15 days and 1 month. In two groups, numbers 4 and 7, the payment was after 3-4 months. Two groups, numbers 9 and 10, received their remuneration after two months. In the case of numbers 1 and 2, the workers had received no payment for work rendered! Another group, number 5, not formally under the scheme, received employment for 1-2 days but received no payment for it. In the remaining group 6, there was no work

under the scheme or the farmers were unaware of the existence of the scheme.

An international equivalent is Argentina's "Jefes de Hogar (Head-of-Household Program, Jefes henceforth). In 2002, after only four months of the implementation of Jefes, the indigence rates among participating households had fallen by nearly 25% and among individuals by over 18%. The government finances no more than 80% of the various Jefes projects. This provision requires that firms and NGOs executing Jefes projects contribute with their own resources. In 2005, Argentina's total government spending on Jefes reached about 1.6 million pesos (less than 1% of GDP), which is a price worth paying for a country that has a national poverty rate above 50%, 9.6 million indigents, and a child poverty rate close to 75%" (Tcherneva and Wray 2005).

5.5.6 The PDS and other coping mechanisms

Outcome 6: The functionality of the PDS the number of farmers who received any special provision during the drought period

The PDS sells various essential items at highly subsidised rates to the economically backward classes and castes in the rural areas. Unfortunately, serious issues with regards to the variety and quality of the items being sold have been raised for years. There is often a disparity between the people who must access this system and those who do. There is an APL class of people who are entitled to a set of items and the BPL class of people who are entitled to items at a highly subsidised rate. According to the villagers, some farmers with large land holdings make themselves BPL cards and claim the entitlements under them. They were angry that, as a result, they were left with leftovers in the form of fewer varieties and inferior quality items. There are four groups, namely numbers 3, 4, 5 and 7, in which all the farmers receive regular rations and the system is functional. In one group, number 6, only 50% of the farmers receive their regular rations. In another, number 12, the farmers receive only kerosene as part of the scheme and, in another, number 13, they receive generally shoddy products. In the remaining groups, the system is either non-functional or non-existent.

Outcome 7: The various other coping mechanisms during periods of drought

Not all the farmers out migrated in search of daily wage labour. They accepted work in their own villages as well. They labored for the farmers with the large and medium land holdings. They would receive about Rs 250-300 per day for their work. In other villages, it was upto Rs 400. With regards to access to drinking water, the women and girls would walk 5-10 km to reach the first accessible water pump. The farmers also ordered water tankers, on occasion, but it proved too expensive and was discontinued.

In comparison Zimbabwe during its major drought in 1992 the farmers to cope sold their livestock, sold their crops and vegetables, and engaged in various crafts activities as part of alternative coping strategies. In Kenya in the region of Turkana which endure a similar frequency with regards to droughts the farmers there engage in various activities which include harvesting of wild fruits for food, honey production, basket making, handicraft products (for example baskets and brooms) crafted from the palm tree and making ghee for the dry season.

5.5 Chapter Conclusion

The variety of responses from farmers adjacent in every respect ranged all the way to the opposite of each other. The attitude to government was ambivalent. On the one hand, their livelihoods were lifted on the weakly benevolent hand of the Indian state. On the other, the farmers in all the villages were demanding of schemes and unmotivated to provide own efforts. In response to our probing, they proposed, in addition to the familiar financial supports, subsidies for seeds, fertilizers, and pesticides. They also demanded an amount of insurance which was double to triple the amount that they had invested in the land. For example, on an expenditure of Rs 10,000 they expected Rs 25,000 in insurance while others demanded it should be upto Rs 35,000 to cover all the costs for both the seasons. Another instance was described by the local NGO. It had arranged to conduct soil testing for the farmers and hence started distributing small pouches for them to be filled with soil and then deposited at the office of the KVK. However, when the NGO conducted a followup, the farmers expressed their unwillingness to oblige. They wanted the KVK to come to them. Some reflections on the despair brought about by abject poverty and the deep-seated cynicism about government intervention are called for here.

Chapter 6: Conclusion

6.1 Introduction

In what follows we ponder over some sharp lessons learnt from our study which lead naturally to some intervention positions.

6.2 Conclusions & Recommendations

Natural calamities are particularly vicious to agriculture, with escalating prices, both manmade and environmentally-induced. The government must either provide price supports or farmers will have to innovate around cheaper alternatives. The first is falling out of favour. Successful innovation schemes, on the other hand, are always spear-headed by government. The call is for more imaginative, contextual financial policies to help mitigate the effects caused by climate change.

Even in the pit of despair, some farmers were circumspect and reflecting. They expressed a preference for durable solutions as reliefs are only a temporary palliative to an enduring problem. Others believed in temporary respites as well as long-run solutions. Most importantly, nothing short of an ideological reorientation is required to move farmers from individual to a community system of financial arrangements. Farmers battle the elements individually and are proud to do so. Economies of scale can be availed of as farmers reduce water consumption, share the costs, and possibly start growing new crops together. They can build various water harvesting structures and establish a water bank after it gets filled up. As a group, the farmers can also invest in micro irrigation which will reduce water consumption and increase production.

Farmers are less comfortable dealing with the private sector. It is difficult to regulate or reign in or correlate private sector practices with private sector outcomes, particularly in the realm of finance. If any line of activity is not eventually remunerative, private capital will flee to seek greener pastures. The welfare of farmers and others in the market is something else. The public sector, on the other hand, notoriously tied up in red tape and glued to the status quo, can be pushed to efficient functioning by the government through the application of tried and tested systems of carrots and sticks. Organised communities can prod both through proven mobilisation strategies like strikes. We refer here to Marianna Mazzucato whose work is pioneering in developing roadmaps for implementing systems of innovations in developing countries (Mazzucato & Penna, 2016, is a recent illustration). The model of SIBs investing in the green economy elsewhere can be applied to the Indian countryside. The context here is the international battle to contain carbon emissions. SIBs are well positioned to coordinate the plans of governments, interests in the town, and interests in the countryside.

Also, the evidence supports their countercyclical policy stance. That is to say, they are designed to offset the credit crunch during real and financial collapses. In other words, when risk aversion goes through the roof, SIBs could act risk neutral, distributing risk across districts and over time.

In the end, it is better to prevent the disease which is crop failure rather than the treatment which is private and public finance. In other words, the task is to develop and strengthen policy as well as set up various systems so as to prevent crop failure and stimulate production. For instance, the inputs of experts might fill in the gap created by scarce or poor historical data (Shen, Odening & Okhrin, 2016).

The first obvious recommendation would be the setting up of a more efficient and targeted information dissemination system. There can be meetings every month where the village leader or an official from the local administration explains the latest schemes and policies of the government. The same outcome could be reached with a few farmers visiting the local official once a month, coming away with information and pamphlets and then educating the rest of the farmers. The technological route is for a mobile service provider to send regular text messages regarding the main provisions of schemes, how exactly to apply for them, and so on, and then the farmers can approach the concerned authority. Naturally, mobile messages can include frequent weather forecasts, truly beneficial for the farmer.

Another major recommendation is to adopt a changing cropping pattern called adaptive farming. Indian farmers use up too much water and other inputs on conventional crops. They need to change their cropping patterns in order to adapt with the changing climate patterns. Adaptation is a process that involves behavioural change to negotiate transformations in coupled human and ecological systems. The challenge for policymakers is to establish a robust policy architecture that is flexible, forward-looking, and focused on the iterative learning between farmers and their environment, enabling them to adapt to disruptions. One of the ways in which they can adapt is by making their own organic manures which will reduce their expenditure on fertilizers and increase their production as well. One option in the air is a return to "*ghaski roti*", a millet unique to the region. *Fikar*, *Kodon*, *Savan*, *Jwar*, *Bajra* are traditional millets of the area and can be easily grown in Bundelkhand's arid land. As these varieties yielded less yield per acre than wheat, in the 1950-60s, when India welcomed the Green Revolution, Bundelkhand switched to wheat. Today, when the country is wheat- and rice-surplus and traditional millets are finding their way to the tables of the upper middle class, small farmers can switch over to their cultivation and earn handsome returns.

Yet another major recommendation concerns the cost of diesel which is a massive portion of costs and condemned to escalate without bound with other nonrenewable resources. The only alternative is a shift to biofuels. The farmer can drive her tractor and operate an irrigation pumpset on biofuel that produced domestically and mixed with conventional fuel. The indigenous brew is fomented from local seeds like honge grown on different trees. The oil is squeezed out of a tiny machine, an innovation of a local agricultural university. Its cost is negligible and it can be provided gratis to farmers. A 1:10-litre combination of honge oil and diesel is found to be socially optimal since not only is biofuel produced but smoke emission is reduced. Armed with this device, the estimate is that a farmer would save from Rs 25,000 to Rs 50,000 a year (Kumar, 2015).

Some of the subtleties of modern wellbeing research can be used to capture this complexity (White et al., 2016). Over time, people adapt themselves to their surroundings. With the informational revolution, the atmosphere must include signs and signals coming from the town and even the world. Thus, a successful programme may, in fact, increase dissatisfaction if aspiration levels have increased faster and higher than income levels. At the same time, another line of argument is to suggest a level of stasis or unchangingness. Indian farmers, through the centuries, have remain trapped in social and physical cages and novel financial policy interventions are positive shocks, which along with negative shocks like a drought, are temporary and after some time restore the low level socio-economic equilibrium. In this regard, a “needs theory of governance” has been offered (Sacchetti & Tortia, 2016). The proposal comprises of two components. There is a constructivist element and there is a binding element. The former is the formation of self-contained groups which naturally enable people to shape the path of action as well as frame rules. The latter is the promulgation of rules that prohibit destructive behaviour and ensure compliance with socially-constructed norms. The strand of governance here would include a set of procedures for the provision of security. Examples are job security and crop security. The notion of self-actualization is paramount. Whether a commodity or a service becomes desirable depends on its contribution to human needs and this contribution needs to be determined empirically. Self-actualization is the expression of the need for justice and solidarity with others. The cognitive limitations to absorbing information, at least, would be overcome. Institutions are the end product, the dropping of the individual reflection into the collective bowl where different orientations are mixed and reconciled.

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Appendices :

Appendix 1

Questionnaire for Field Research

1. What is the size of your holding?

2. How much do you spend on agricultural inputs such as seeds and fertilizer?
3. How many crops do you grow each year?
4. How much money do you earn by selling your produce?
5. Has the *Krishi Vigyan Kendra* or any NGO trained you in farming methods which require very little water?
6. How are you coping with the reduced gains from agriculture?
7. Have you applied for any social welfare schemes such as MGNREGA?
8. Have any of your family migrated for work purposes? If so, where, and for what kind of work?
9. Have you ever taken a loan from a bank/moneylender? If so, how much?
10. What was the purpose for which the loan was taken?
11. How long did it take you to repay the loan?
12. Have you availed of/do you avail of crop insurance? If not, what are the reasons?
13. If you had to design a crop insurance system what would be the premium?
14. What else would you include in your crop insurance system? For example, in the event of your passing your next of kin could also avail of the policy.
15. What will you do with the amount you receive after you make your claim?
16. Would you like to have personal/individual insurance or be protected as a group so that the premium amount can be collectively paid for and invested together?
17. Do you think this system will be helpful in the long term and make you want to reinvest in agriculture?