TRIBAL DEVELOPMENT REPORT

LIVELIHOODS

Edited by
Mihir Shah and P.S. Vijayshankar
Bharat Rural Livelihoods Foundation

Tribal Development Report

This book sheds light on the status of tribal communities in central India with respect to livelihoods, agriculture, natural resources, economy and migration. Written by noted academics, thematic experts and activists, this first-of-its-kind report by Bharat Rural Livelihoods Foundation brings together case studies, archival research and exhaustive data on key facets of the lives of Adivasis, the various programmes meant for their development and the policy and systems challenges to build a better understanding of the Adivasi predicament.

This volume,

- Provides a broad overview of the contemporary macro-economic situation of Adivasi communities, with a special focus on the challenges of agriculture, land, energy and water use, especially groundwater;
- Highlights the need to move into a new paradigm of agro-ecology-based, nature-positive farming and sustainable water use driven by local institutions;
- Examines the neglect faced by tribal areas in the development of infrastructure in various dimensions, from irrigation to energy;
- Shares insights on the invisibility of tribal voices in the policy processes and how political empowerment will enable socio-economic changes for the Adivasis at grassroots levels;
- Discusses the Adivasi informal sector and the state of migrant workers, whose plight drew national attention during the recent COVID-19 pandemic.

This book will be of great interest to scholars and researchers of indigenous studies, development studies and South Asian studies.

Mihir Shah co-founded the Samaj Pragati Sahayog in 1990 and has spent the past three decades living and working in remote, central tribal India, forging a new paradigm of inclusive and sustainable development. From 2009 to 2014, he was Member, Planning Commission, Government of India,

chiefly responsible for drafting the paradigm shift in water enunciated in the 12th Five Year Plan, as also a makeover of MGNREGA, with a renewed emphasis on rural livelihoods, based on construction of productive assets. In 2019, the Government of India invited him to chair a committee to draft the new National Water Policy.

P.S. Vijayshankar is Co-founder of Samaj Pragati Sahayog, one of the largest civil society initiatives in water and agriculture based in central India. He has lived and worked among the tribal communities for over 30 years. He was Visiting Scholar at the Centre for Advanced Study of India (CASI), University of Pennsylvania, Philadelphia, USA, (2011) and is currently Adjunct Faculty at Centre for Public Affairs and Critical Theory (C-PACT), Shiv Nadar University, Delhi. He is Founding Director of Nature Positive Farming and Wholesome Foods Foundation (N+3F), a company engaged in the promotion of sustainable agriculture.

Bharat Rural Livelihoods Foundation (BRLF: http://brlf.in) was set up by the Ministry of Rural Development, Government of India as an independent society with the aim of upscaling civil society action in partnership with government, with a focus on the central Indian tribal region. Together with its civil society partners and several state governments, BRLF is working with hundreds of thousands of mostly tribal households to eliminate poverty and deprivation, develop climate-resilient sustainable livelihoods, create empowered community institutions led by women and build capacities and tribal leadership at the grassroots. This *Tribal Development Report* has been anchored by BRLF's research vertical.

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Siddharth Patil is a researcher who has extensive knowledge and experience of watershed development and effective management of groundwater resources. He has laid emphasis on participatory approach to research by applying the science of hydrogeology to comprehend aquifer mechanisms. Patil and his organization ACQADAM have been involved in facilitating community-backed decisions and action on groundwater management particularly in areas which are drought prone. He has contributed to a number of technical reports, including *People's participation for Sustainable Groundwater Management* (2018) and *Groundwater Management in India: Status, Challenges and a Framework for Responses* (2018) and has co-authored on the areas of watershed development and groundwater management in India.

Pradip Prabhu is an activist and advocate of Kashtakari Sangathan, which is a struggle-based mass organization of marginal farmers and labourers predominantly from the tribal communities. He was a member of the Technical Resource Group, which was responsible in drafting the Forest Rights Act, 2006. He is currently a professor at the School of Rural Development, Tata Institute of Social Science in Tujlapur. Pradip Prabhu was also the National Convenor for the Campaign for Survival and Dignity (CSD) which was responsible in spearheading the passage of Forest Rights Act in 2006. *Transience and Transition in Social Institutions: The Worli Experience* (1988), *PESA and the Illusions of Tribal Self Governance* (2003) and *Internal Colonialism* (2003) are some of his noteworthy works.

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Through Environmental Regeneration (1998) and co-edited (along with Mihir Shah) the book, *Water: Growing Understanding, Emerging Perspectives* (2016). In addition, his works have been published in journals of national and international repute. He has been a visiting scholar at the Centre for Advanced Study of India (CASI), University of Pennsylvania, Philadelphia in February–March 2011. Currently, Vijayshankar is the Director of Research at SPS and an adjunct faculty at Shiv Nadar University.

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Introduction

Mihir Shah and P.S. Vijayshankar

This is a report (in two volumes) about the invisible people of India. A testament to how truly invisible they are is the fact that this is almost the first report of its kind about the Adivasis of India, in more than seven decades since Independence.[1]

In the development paradigms of our time, there are those who do not find a place. Their interests are not merely ignored, they are deeply wounded. Among them is the ecosystem that nurtures life on earth, as also the aboriginal inhabitants of this planet, the Adivasis. The relentless juggernaut of rapacious consumption destroys forests, mines groundwater, pollutes rivers, as also the air we breathe. The well-being of communities who are weak and without a voice gets trampled over in the process. The Adivasis of India have suffered great historical injustice.

This report seeks to document these injustices but also attempts to explain how we can redress them. It chronicles the various ways in which policy has impacted the Adivasis, policies that ignored them and others that tried to benefit them. In each case, the aim is to discover the way forward so that we can learn from the mistakes of the past, as also from those attempts that show glimmers of insight that we can build upon. The report is inspired by efforts to support Adivasis to find their sense of agency in the massive task of national reconstruction and an attempt to learn from the Adivasis what they can and need to teach us, about sustainable development, of a way of life that both understands and respects nature.

Adivasis are the aboriginal inhabitants of India, driven, over centuries, further and further away from the alluvial plains and fertile river basins into "refuge zones" – hills, forests, and drylands. Whatever be the exact historical process that led the Adivasis there (and this has indeed been a matter of debate and disagreement among scholars), the undeniable fact is that today they inhabit some of the harshest ecological regions of the country:

- Forests (where >15% of district area is under forest);
- Hilly areas (1–3, 7, 8 and 11 of the 14 physiographic zones classified by the Forest Survey of India's *State of the Forests Report*, 2009); and
- Drylands (as defined in Shah et al. (1998)[2]

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Table I.1 Distribution of Adivasi Districts by Ecological Zones, 2011

Ecological region	*Districts*	*Percentage of districts*
Forests	193	75%
Dry	98	38%
Hilly	77	30%
Hills and forests	72	28%
Dry or hilly or forests	230	90%
All India	**257**	**100%**

Source: Regional Disparities in India A Moving Frontier, Mihir Shah et al., Economic and Political Weekly, Jan 3, 2015, Pg. 50.

This analysis includes only those districts where the Adivasi population is at least as high as the national average. We call these the "Adivasi districts" of India. In 2011, there were 257 such Adivasi districts.

We can see that of the 257 Adivasi districts, 230 districts (90%) are either forested or hilly or dry. Together, these 230 districts account for 80% of the total Adivasi population of the country. Also, we must also recognize that Adivasi areas typically transcend static administrative borders of districts and states. Indeed, Adivasi concentration mirrors the ecological continuity of these areas in terms of their being hilly, forested or dry. Adivasi sub-districts belong to a larger contiguous backward region or Adivasi belt, which goes beyond the frozen administrative categories of state, district and sub-district. In fact, mapping of predominantly Adivasi concentrated sub-districts suggests a continuum of pockets of underdevelopment that are connected to one another and to the larger development processes around them. A brief illustration of this can be provided with reference to the districts of Gwalior, Vishakapatnam and Thane. In Gwalior, the backward sub-district of Bhitarwar adjoins Shivpuri district in the south. This larger area is part of the contiguous Sahariya Adivasi (Particularly Vulnerable Tribal Group – PVTG) belt that moves from Baran in Rajasthan in the west, towards the east to Sheopur, Shivpuri, Gwalior and Bhind across Madhya Pradesh. Similarly, in Vishakapatnam, we find the backward sub-districts of Peda Bayalu, G. Madugula, Chintapalle all concentrated in the north, adjoining the Adivasi-dominated KBK region of Odisha. In Thane too, we find wide variations in the levels of development between the prosperous south and the neglected Adivasi regions in the north. The majority of the Adivasi population is concentrated towards the north in the sub-districts of Palghar, Dahanu, Vikramgadh, Talasari, Mokhada and Wada. This area is part of a contiguous Adivasi stretch covering districts of Dadra and Nagar Haveli, Daman and Diu and parts of Gujarat and Rajasthan.

Over time, in their refuge zones, the Adivasis came to develop a relationship of symbiosis with their immediate environment. They revered and protected the forest, which provided their basic needs. This relationship was

canonized in the form of customary rights over forest produce. With the advent of the colonial rule, especially over the last century, this bond was ruptured. After the 1980 Forest Conservation Act, the conflict came to be seen as between environmental protection and needs of local Adivasi communities. The Adivasi response was illegal felling of trees and grazing of forest grasslands. A wedge was driven between people and forests.

The National Forest Policy of 1988 did for the first time explicitly recognize that domestic requirements of local people should be the first charge on forest resources. It also emphasized safeguarding their customary rights and closely associating Adivasis in the protection of forests. But movement towards a people-oriented perspective has not been matched by reality on the ground. Even after the much-touted Joint Forest Management, it is the writ of the forest guards that continued to rule the forest. Corruption was institutionalized and destruction of the forest by all parties proceeded apace. Deforestation ruined original Adivasi habitats and forced them to move out. Having first been driven over centuries to retreat into refuge zones, the Adivasis were forcibly pushed out of an ambience with which they had gradually developed a close relationship.

Following the breakdown of their relationship with the forest, Adivasis in most areas made a hesitant and faltering entry into agriculture. Census figures show that over 93% of Adivasis are employed in agriculture. The stereotype of Adivasis living in isolated, self-contained, "hunter-gatherer" communities is no longer accurate. These Adivasi farmers are subject to myriad forms of exploitation by the highly interlocked non-Adivasi axis of power that dominates the land, land-lease, labour, credit and input markets. Often, Adivasis lose control over their land since they cannot repay their debts. Thousands of hectares of land have been lost in this manner.

The Panchayats (Extension to the Scheduled Areas) Act, 1996 (PESA) and the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (FRA) were landmark legislations to correct the historical injustices done to Adivasis, to strengthen democratic decentralization in these areas and protect the rights of the Adivasis. However, as elaborated in this report their implementation has left a lot to be desired.

As a result, measured on any reasonable metric, among all communities, the Adivasis of India find themselves at the bottom of the development pyramid. In all kinds of physical and social infrastructure and human development, including health, nutrition, education, irrigation, roads and governance, they have suffered the maximum neglect. On top of that, they have also borne the brunt of the ravages of development:

> Independent estimates place the number of people displaced following development projects in India over the last sixty years at 60 million, and only a third of these are estimated to have been resettled in a planned manner. This is the highest number of people uprooted for development projects in the world. Most of these people are the asset-less rural poor,

> marginal farmers, poor fisher-folk and quarry workers. Around 40 per cent of those displaced belonged to Adivasis and 20 per cent to Dalits. Given that 90 per cent of our coal, more than 50 per cent of most minerals and most prospective dam sites are in Adivasi regions, there is likely to be continuing contention over issues of land acquisition in these areas, inhabited by some of our most deprived people.
>
> (Planning Commission, 2013, Vol. I, p. 196)[3]

Indeed, contrary to what mainstream economic theory postulates, we find that many "developed" districts paradoxically include pockets of intense "backwardness".[4] As per the 12th Five Year Plan, many districts include the most backward and most developed sub-districts within them: 92 districts have sub-districts that figure in the list of both the top 20% and bottom 20% of India's sub-districts. Because the demography of Adivasis in central India displays a striking singularity – high density coupled with minority status – Adivasi pockets (clusters of hamlets) are surrounded by large masses of non-Adivasis. In a large number of polarized districts, where the majority of the population in the district is non-tribal, we not just find a high concentration of tribals in the backward sub-districts, we also discover evidence of this enclavement around centres of growth and development. In Korba and Raigarh districts of Chattisgarh, Valsad of Gujarat, Paschmi Singhbhum and Purbi Singhum of Jharkhand, Kendujhar, Koraput and Mayurbhunj of Odisha, we find that the most advanced sub-districts are flanked by the most underdeveloped tribal sub-districts. Thus, far from the ideal pattern of development expanding in concentric circles around growth poles, we find a growing divergence of development leading to a high degree of polarization within different, even adjacent, parts of the same district. In fact, in spatial terms, the extent of divide in these districts manifests itself as a core–periphery contrast. It could even be suggested that in many instances, the development of the larger region of which the tribals are a part itself becomes a source of underdevelopment of the tribals. Typically, tribal areas are mineral- and forest-rich, and the extraction of these resources tends to be a one-way street with little benefit flowing to the tribal people.

This spatial dimension of uneven development in these "polarised" districts calls for a re-examination of some of the conventional theories of development planning. Mainstream regional economic planning entails a growth pole strategy designed with the expectation of favourable spin-off impacts for the larger region. Advocates for the strategy argue that all regions do not possess equal capacity to grow and deliberate focusing of investment on a limited number of centres would satisfy a necessary condition for development. Typically, the strategy involves concentration of investment at a limited number of locations in an attempt to encourage economic activity and thereby improve the standards of living within a broader region. A growth pole is viewed as a "set of expanding industries located in an urban area

and inducing further development of economic activity throughout its zone of influence" (Boudeville, 1966 as quoted in Parr, 1999).[5] It is generally assumed that early development within a region would initially generate increasingly large differentials in income and development, but gradually as the core prospers, inter-regional income inequality after reaching a maximum level would subsequently decline in the manner of an inverted U, so-called Kuznets Curve.[6] According to Williamson (1965):

> Somewhere during the course of development, some or all of the disequilibrating tendencies diminish, causing a reversal in the pattern of interregional inequality. Instead of divergence in interregional levels of development, convergence becomes the rule, with the backward regions closing the gap between themselves and the already industrialised areas. The expected result is that a statistic describing regional inequality will trace out an inverted "U" over the national growth path.[7]

Adivasi experience in India directly contradicts this sanguine view that dominates mainstream development economics literature. It is clear that while the growth pole could be regarded as a necessary condition for growth of the region, it is by no means sufficient for the purpose. Contrary to this perception of a distributive core, we find that increasingly the deprivation of the Adivasis happens around the growth pole. What is more, given the abysmal levels of human development of the Adivasi people, thanks to the complete absence of requisite health and education facilities in their areas, they are deeply disadvantaged in being able to benefit from the possibilities of growth in these regions. This not only points to the infirmities and inadequacies of the prevailing regional development strategies but also raises pertinent questions about the nature of development taking place around the so-called growth poles. Clearly, development coexists with underdevelopment in a large number of districts in India. It may even be that the development and underdevelopment of sub-regions within the same region could be of one piece. As Hirschman and Rothschild presciently warned nearly half a century ago,

> In the early stages of rapid economic development, when inequalities in the distribution of income among different classes, sectors and regions are apt to increase sharply, it can happen that society's tolerance for such disparities will be substantial. To the extent that such tolerance comes into being, it accommodates, as it were, the increasing inequalities in an almost providential fashion. But this tolerance is like a credit that falls due at a certain date. It is extended in the expectation that eventually the disparities will narrow again. If this does not occur, there is bound to be trouble and, perhaps, disaster.
>
> (Hirschman and Rothschild, 1973, p. 545)[8]

The "initial gratification" caused by the hope-inducing "tunnel effect" that Hirschman and Rothschild drew attention to has long since run its course in Adivasi India, which is increasingly gripped by a sense of alienation and disenchantment with the national mainstream.[9] Because they generally form such a small proportion of the district or state population, they are also often unable to influence the mainstream political agenda. The political leadership that arises, for the most part, projects them only symbolically and strategically. It has a limited voice in effecting power sharing between the state and tribal areas, which for many is a critical step to improve the lives of tribals in India.[10]

There is, therefore, an urgent need to rethink strategies of development for these regions with a greater focus on sustainable and equitable natural resource management, within a framework of greater devolution of powers and participatory development planning. A focus on the sub-district would be a natural starting point for a new strategy for these regions.

The Bharat Rural Livelihoods Foundation (BRLF) was constituted by the Government of India with precisely this aim in view. The focus of BRLF work is the central Indian Adivasi belt, centred on sub-districts with more than 20% Adivasi population in around 1,000 sub-districts across about 190 districts in the States of Andhra Pradesh, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Telangana and West Bengal. The aim is to help build a new paradigm of sustainable and equitable development, anchored in the principles of subsidiarity and people's empowerment. Exemplifying this new paradigm through the work of carefully selected civil society partners, mandatorily working in close partnership with Gram Sabhas, Gram Panchayats and state governments would enable an improvement in the implementation of the various programmes of the central and state governments, which have suffered historically from a growing gap between outlays and impactful outcomes on the ground. The goal is to rebuild the confidence of the Adivasi people in Indian democracy and India's development process by establishing their agency as the pivot upon which the entire development momentum is built.

This report is a logical culmination of the work BRLF has been doing in this direction over the past eight years. The idea was to get the best scholars and practitioners to come together to review different key facets of the lives of Adivasis, as also the various programmes meant for Adivasi development, in order to build a better understanding of the Adivasi predicament and come up with suggestions for improving the design and quality of implementation of development programmes.

This first volume of the report focuses on multiple dimensions of Adivasi livelihoods. The aim of this volume is to provide a broad overview of the macroeconomic situation of Adivasi communities, with a special focus on the challenges of agriculture and water, especially groundwater, highlighting the need to move into a new paradigm of agro-ecology-based, nature-positive farming and sustainable water use, spearheaded by powerful institutions of

Adivasis, led by women. It is argued that these institutions are critical if the Adivasis are to extricate themselves from the clutches of usurious moneylenders, without which it becomes impossible to free themselves of the debt trap, condemning them to a vicious cycle of poverty. They also make it possible for the most vulnerable to take advantage of the possibilities opened up by the market because a solitary small and marginal farmer has no chance when confronted by powerful forces in the market, whether as consumer or producer. Expressions of collective will would also ensure accountability of government systems, which are meant to serve them but have instead become another source of exploitation, given their non-transparent character and functioning. And finally Adivasi empowerment holds the key to their being able to adequately utilize the huge political potential opened up by democratic systems of representation and decision-making, especially through Panchayati Raj institutions, which have remained largely dormant so far in Adivasi regions.

A major finding of the research included in this volume is the distinctive neglect of tribal areas in the development of infrastructure in various dimensions, from irrigation to energy. The history of tribal land rights is traced to show the repeated tragedies suffered by the Adivasis of India. This volume ends with a glimpse of and insights into the special challenges faced by Adivasi informal sector and migrant workers, whose plight drew national attention during the recent COVID-19 pandemic.

The second volume of this report (being brought out as a separate book, simultaneously with this first volume) focuses on human development and governance, covering the dismal state of health, education and nutrition in Adivasi regions. Special attention is also paid to the key issues related to gender in an Adivasi context. An updated account is presented of the progress made thus far in implementing PESA and FRA, as also the tragedy of the so-called denotified tribes of India. A separate section is devoted to Adivasi arts, crafts, knowledge, language and literature.

At a time when the world faces an unprecedented challenge to its ways of thinking about development and our relationship to Nature, the Adivasi legacy could teach us so much about respecting and preserving diversity, about a way of life based on virtues of simplicity and humility that the post-industrial civilization has all but forgotten. It may not be still too late to learn from our aboriginal teachers. The question is: do we have the requisite humility and sagacity to be students again?

Notes

1 While a large number of propositions in the report are applicable to the whole of India's Adivasi population, its primary focus is on the central Indian Adivasi belt, inhabited by 75% of India's Adivasis.
2 Shah, Mihir. (1998). India's drylands: tribal societies and development through environmental regeneration. New Delhi: Oxford University Press.
3 Planning Commission (2013): *Twelfth Five Year Plan*.

4 Sanchita Bakshi, Arunish Chawla and Mihir Shah (2015): 'Regional Disparities in India: A Moving Frontier', *Economic and Political Weekly* January 3.
5 JB Parr (1999): 'Growth Pole Strategies in Regional Economic Planning: A Retrospective View', *Urban Studies* Vol. 36.
6 Simon Kuznets (1955): 'Economic Growth and Income Inequality', *American Economic Review*, Vol. 45, No. 1. It is, of course, yet another matter that the literature has widely misrepresented what Kuznets actually says in this landmark paper.
7 J Williamson (1965): 'Regional Inequality and the Process of National Development: A Description of the Patterns', *Economic Development and Cultural Change* 13.
8 Albert Hirschman and Michael Rothschild (1973): 'The Changing Tolerance for Income Inequality in the Course of Economic Development', *The Quarterly Journal of Economics* Vol. 87, No. 4, pp. 544–566.
9 As Hirschman and Rothschild remark:

> For the tunnel effect to be strong (or even to exist), the group that does not advance must be able to empathise, at least for a while, with the group that does. In other words, the two groups must not be divided by barriers that are or are felt as impassable . . . If, in segmented societies, economic advance becomes identified with one particular language or ethnic group or with members of one particular religion or region, then those who are left out and behind are unlikely to experience the tunnel effect.
>
> (pp. 553–54)

10 For more on lack of tribal leadership, see Roy Burman (1989): *Tribes in Perspective*, New Delhi: Mittal Publications.

1 Macroeconomic Situation of Scheduled Tribes in India With a Focus on Central Indian Tribal Belt

Sayantani Satpathi

Introduction

India ranks sixth in the list of wealthiest countries in the world when income inequality has continued to reach historically highs since the 1980s. The Gini Coefficient continues to rise, from 81% (2008) to 85% (2018), emphasizing growing income inequality with the country's top 10% of the population holding 77% of the total national wealth. The country's wealth is in the hands of millionaires, who depend on the land, natural resources, and government contracts for generating income. The rising GDP and per capita income with a decline in absolute poverty did not translate to improvement in the quality of life. India ranks 130 out of 188 countries in the UNDP Human Development Index (HDI), 62nd out of the 74 emerging economies on the Inclusive Development Index. As per Global Multidimensional Poverty Index for 2019, India (364 million) has the largest number of people living in multidimensional poverty, even if the incidence of multidimensional poverty reduced to half – 635 million (2005–06) to 364 million (2015–16) (OPHI-UNDP Report, 2020). Given the iniquitous and hierarchal character of Indian society, economic and social deprivation is worse for the minority groups, viz. the Other Backward Castes (OBCs) (41%), the Scheduled Castes (20%) and the Scheduled Tribes (9%) of India's population. In the light of these observations, the chapter critically sets the following objectives: to examine the economic status of one of India's minority groups, especially the Scheduled Tribes/Adivasi and assess the impact of government programmes on Adivasi development.

About 81% of the total Adivasi population stay in Central India Tribal Belt (CITB), home to considerable tracts of forests and vast deposits of mineral resources (90% of India's coal reserves and 80% of mineral reserves, including manganese, bauxite, iron, copper, lead and zinc) come from the region. Constituting 57% of the Indian landmass, CITB comprises Rajasthan, Gujarat, Maharashtra, Madhya Pradesh, Chhattisgarh, Jharkhand, Andhra Pradesh, Telangana and Odisha. Although West Bengal is located in eastern India, we have included it in our study due to similarities with the CITB in terms of tribal presence and forest and mineral reserves.

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CITB is one of the most vulnerable agricultural regions due to climate change and climatic variability. According to an article by Roxy et al. (2017) on an average, the region experienced 10% rainfall deficit in summer monsoon rainfall (June–September) between 1950 and 2015.[1] The same article reported that this region witnessed a threefold rise in the frequency and intensity of extreme rainfall (more than 150 mm per day covering an area of 200–250 km^2 (Roxy et al., 2017). Home to 555 million people, out of which 84 million belong to the different Adivasi communities, the majority of the population depend on agriculture and related activities for livelihood and food security. But with limited access to irrigation, 68% of the country's 142 million hectares of arable land is under rainfed agriculture.[2] Of the CITB districts, along with parts of Andhra Pradesh, Odisha and West Bengal have more than 70% area under rainfed condition and comes under dry and moist semi-arid climate and moist sub-humid climate.[3]

Across the country, Adivasis are classified into four subgroups depending on their traditional lifestyles. These sub-groups are classified into settled, de-notified, nomadic, and semi-nomadic (Ministry of Social Justice and Empowerment). The sedentary tribal communities rely on forests and forest produce, and there are others who rely on farming. The nomadic tribal groups include hunters, gatherers, pastoralists, and the peripatetic/non-food-producing groups. In pre-colonial India, Adivasi communities had full control over the vast tracts of land and forests over centuries. The colonial intrusion into tribal areas started during the last decade of the eighteenth century. The British administration realized the commercial potential of the Indian forests and decided to assert state monopoly over the control of forest and forest resources.[10] As traditional livelihoods were lost, Adivasis started operating as "indentured labourer,"[11] working in tea garden,[12]

Table 1.1 Demographic Features of Adivasis in CITB

S.No.	*States*	*Total population (in millions) 2011*	*Percentage ST population in the state, 2011*	*Percentage of STs in the state to the total ST population in India, 2011*
1	Rajasthan	68.55	13.5	8.8
2	Gujarat	60.44	14.8	8.5
3	Madhya Pradesh	72.63	21.1	14.7
4	Chhattisgarh	25.55	30.6	7.5
5	Maharashtra	112.38	9.4	10.1
6	Odisha	41.97	22.8	9.2
7	Jharkhand	32.99	26.2	8.3
8	West Bengal	91.28	5.8	5.1
9	Andhra Pradesh	49.39	5.3	2.5
	All India	1,210.86	8.6	-

Source: Statistical Profile of Scheduled Tribes in India, 2013

Table 1.2 Salient Features and Resources of the CITB

States	*Geographical area (million ha.)*[4]	*Forest cover (%)*[5]	*Area under food grains (million ha.)*[6]	*Cultivated area irrigated (%)*[7]	*Cropping intensity (%)*[8]	*Rainfall (mm.)*[9]	*Minerals*
Rajasthan	34.22	4.73	13.27	26.4	141.7	302–683	Lignite, copper, iron-ore, zinc, manganese ore, limestone, mica
Gujarat	19.60	7.48	3.69	44.7	118.9	468–793	Lignite, bauxite, limestone
Madhya Pradesh	30.83	25.13	12.46	44.5	145.8	865–925	Coal, bauxite, copper, iron-ore, manganese ore, limestone, diamond
Chhattisgarh	13.52	41.12	4.86	27.6	120.8	1,275	Coal, bauxite, iron-ore, limestone
Maharashtra	30.77	16.45	12.11	16.8	138.3	549–919	Coal, bauxite, iron-ore manganese ore, limestone
Odisha	15.57	32.34	5.41	33.6	116.0	1,537	Coal, bauxite, iron-ore, chromite, manganese ore, limestone
Jharkhand	7.97	29.45	1.62	5.9	115.1	1,157	Coal, bauxite, copper, iron-ore, manganese ore, limestone
West Bengal	8.88	18.96	6.24	48.2	191.6	1,242	Coal
Andhra Pradesh	16.02	15.25	6.67	63.9	129.7	523–778	Coal, natural gas, iron ore, limestone and baryte
Telangana	11.21	18.80	N/A	N/A	N/A	686	
CITB	188.59	20.97	66.33	34.62	135.3	300–1,200	
India	328.75	21.34	121.33	48.3	140.5	300–3,500	

agriculture and mining (Deshpande, 2017). Following the establishment of British rule, the situation changed as the tribal communities faced the loss of land and denied access to forests. As they continued to lose their traditional livelihoods, Adivasis worked as casual manual labourers in agriculture and mining operations.

Following Independence, the government undertook a series of development initiatives to reduce the disparity in income between the tribal and non-tribal groups. However, the post-Independence paradigm of development and emphasis on urbanization and industrialization led to the displacement of tribal population from their traditional habitats (Siva Prasad and Eswarappa, 2007). Forest-dwelling communities lost their rights to access the forests and forest produce due to deforestation and the land

Table 1.3 Traditional Sources of Livelihoods of Adivasis

Traditional economic activities	*Adivasi groups*
Hunting and foraging	Birhor, the Hill Kharia, the Pahariya, the Birijia, the Korwa, the Chenchu, the Kurumba, the Paliyan, the Kadar, the Jarawa, the Onge and the Sentinelese
Hill cultivation	Tribal people inhabiting the hills of Assam, Meghalaya, Manipur, Tripura, Odisha, Andhra Pradesh, Madhya Pradesh and Chhattisgarh engage in hill cultivation. The Garo, the Tripuri, the Chakma, the Mog, the Naga, the Maler, the Hill Kharia, the Juang, the Paudi Bhuyian, the Koya, the Konda Reddi, the Baiga, the Maria Gond
Plain land agriculture	The Khasi and Jaintia, the Khasa and Tharu, the Kinnaur, the Bhumij, the Kora, the Bhuyian, the Santal, the Munda, the Ho, the Oraon, the Baiga, the Gond, the Mina, the Garasia, the Bhil, the Warli and the Thakur
Crafts and cottage industries (basket and rope making), tool making (iron and wooden), spinning and weaving, metal work	The Gujjar and Kinnaur (wood work), the Irula, Thoti, Kanjar and Kolam (basket and rope making), the Lohar and Karmali (iron agricultural implements), the Chik-Barik (hand woven cloth), the Mahali (basket and bamboo products), the Godulia Lohar, Mahali, Asur and Agaria (iron smith)
Pastoral and animal-herding	Toda, the Gujjar, Bakarwal and Gaddi, the Golla, Kuruba and Lambada, the Kisan and Nagesia, the Rabari and Sansi
Folk arts (singing, barding and dancing, other activities such as tattoo-making, acrobatics and magic/ trickery)	Nat and Sapera, Kela, Pradhan and Ojha, Madaria, Pamula and Garadi

Source: Report of the HLC on Socio, Economic, Health and Educational Status of Tribal Communities in India, 2014.

acquisition policies of the state. Consequently, Adivasi communities started operating mostly as labourers in the informal sectors across rural and urban settings.

Harriss-White et al.'s (2014) study looked at the spatial and occupational distribution of STs and SCs in India from 1990 to 2005. The authors use the analogy of "dumb-bell" to discuss the spatial distribution of Adivasis, as majority of them reside in Central India and the North-East, and far fewer in the northern and southern India. This chapter regards forestry as the main source of tribal livelihoods in Western India, agricultural production and manual labour in Central India and artisanship in the non-farm economy of the Eastern India (Harriss-White et al., 2014, p. 78). The latest census revealed that the majority of Dalits were found in four states: Uttar Pradesh (21%), West Bengal (11%), Bihar (8%) and Tamil Nadu (7%). While the majority continue to live in rural India as small and marginal farmers, landless workers migrate to urban centers, working as manual workers in formal and informal sectors. A small proportion of Dalits who have received education hold government jobs because of reservations.

Economic Status of Adivasis

Estimates of Poverty

The Ministry of Rural Development (Government of India) has conducted the Socio Economic and Caste Census (SECC) (2011) to rank household as per the socio-economic status and gather authentic information regarding the socio-economic condition and education status of different social groups in the country.[13] The SECC revealed that at all-India level, fewer members of the ST and SC households have the highest earning members earning more than ₹10,000. Among all social groups, 7% of the highest earners in a household earned more than ₹10,000. The figures were nominal for Adivasi and Dalit households, where less than one percent of the highest income generators in a household could earn more than ₹10,000.

For all other social groups, the majority of households have their highest earning member earning less than ₹5,000. Similar trends were visible across the CITB, as close to a majority (48%) of households have the highest earning member earning less than ₹5,000 among all social groups. When we look at the proportion of households, especially among the STs and SCs, where the income of the highest earning member of the household exceeded ₹5,000, it was 2% ST and 3% SC.

In the early1990s, amidst depleting foreign exchange reserve, double-digit inflation, and political uncertainty, the central government decided to undertake intensive policy changes in various economic sectors. In post-Independence India, the country's own experience with protectionist policy for the first three decades (1950–80), followed by liberalization in the 1980s, persuaded policymakers with pro-market and pro-free trade economy (Panagariya, 2004, p. 5). The structural and stabilization aspects of the

Table 1.4 Monthly Income of Highest Earning Household Member (For All Social Groups, SCs and STs)

S.No.	*State*	*Highest monthly income (all social groups)*			*Highest monthly income (SCs)*			*Highest monthly income (STs)*		
		<5,000	*5,000–10,000*	*>10,000*	*<5,000*	*5,000–10,000*	*> 10,000*	*<5,000*	*5,000–10,000*	*> 10,000*
1	West Bengal	50.7%	8.9%	4.6%	24.9%	2.4%	1.2%	6.7%	0.3%	0.2%
2	Jharkhand	42.5%	10.0%	5.3%	10.6%	1.4%	0.9%	23.5%	4.1%	1.5%
3	Odisha	48.5%	5.8%	3.9%	16.6%	0.9%	0.5%	22.9%	0.6%	0.4%
4	Rajasthan	42.4%	13.7%	7.7%	15.3%	2.2%	0.9%	15.4%	1.3%	0.9%
5	Gujarat	46.0%	18.0%	8.2%	4.8%	1.1%	0.4%	17.8%	2.7%	0.9%
6	Maharashtra	49.2%	15.6%	9.4%	10.0%	1.5%	0.9%	11.7%	1.1%	0.6%
7	Andhra Pradesh	58.7%	12.7%	3.9%	15.6%	2.3%	0.6%	5.2%	0.6%	0.1%
8	Telangana	48.8%	17.7%	7.2%	14.9%	2.4%	0.7%	9.3%	1.7%	0.5%
9	Chhattisgarh	51.1%	14.7%	4.6%	12.8%	0.7%	0.4%	34.4%	1.6%	0.9%
10	Madhya Pradesh	43.6%	3.7%	2.0%	13.7%	1.1%	0.4%	23.4%	1.4%	0.5%
	CITB	48.2%	12.1%	5.7%	13.9%	1.6%	0.7%	17.0%	1.5%	0.7%
	All India	49.6%	14.0%	6.9%	15.4%	2.1%	0.9%	9.5%	1.0%	0.5%

Source: Socio Economic Caste Census, 2011.

economic reforms focused on tax reforms, foreign trade and investments, banking and capital investments and did not include any specific packages designed for agriculture. The percentage of fertilizers subsidies has declined from 38.4% in 1980–81 to 24.8% in 2001–02 (increasing substantially to 87.3% in 2008–09), electricity subsidy declined from 29.1% in 1980–81 to 12.7% in 2008–09 (the electricity subsidy has increased from 1990–91 to 2001–02), while irrigation subsidies declined from 32.5% in 1980–81 to 26.6% in 2008–09 (the irrigation subsidy had increased in 1985–86). Considering that most of the tribes work in the primary sector as cultivators or labourers, the incidence of poverty among the ST population has been much higher compared to all the other social groups, including the SCs.

In an effort to understand the extent of deprivation faced by tribal groups in the country during the post-reform era, we will look at the poverty line in all India. Several technical committees[14] have been set up to arrive at the "official estimates of poverty line" and "Head Count Ratios" (HCR) (Manna, 2017, p. 39). We will refer to two such committees that shaped our understanding of poverty estimates in the country that is, the Lakdawala Committee (1993) and the Tendulkar Committee (2009). The Lakdawala Committee continued to use the prices of 1973-74 as a base year and fixed calorie consumption ((2,400 kcal / day in rural areas and 2,100 kcal / day in urban areas) for PL calculations in rural and urban India.[15] The Expert Committee also proposed setting of state-specific poverty line.[16] The Tendulkar Committee[17] took a different approach for estimating the poverty line.

The extent of poverty (based on the methods adopted by Lakdawala or Tendulkar committees) remains highest among Adivasis compared to all other groups. According to the Planning Commission figures, people living below the poverty line fell for all social groups, including Dalits and Adivasis, between 1993-1994 and 2011-12. In fact, the proportion of people

Table 1.5a Percentage of Population Below Poverty Line Calculated by the Lakdawala Committee and the Tendulkar Committee

Committees	*1993-94*		
	Rural (%)	*Urban (%)*	*Total (%)*
Lakdawala Committee	37.3	32.4	36.0
Tendulkar Committee	50.1	31.8	45.3
		2004-05	
Lakdawala Committee	28.3	25.7	27.5
Tendulkar Committee	41.8	25.7	37.2
		2009-10	
Tendulkar Committee	33.8	20.9	29.0

Source: Report of the Expert Group on Estimation of Proportion and Number of Poor, 1993 (, Perspective Planning Division, Planning Commission; Report of the Expert Group to Review the Methodology for Estimation of Poverty, 2009, Planning Commission

who come out of poverty remains the highest among Dalits (35 percentage points). By comparison, Adivasis communities made the least progress in the same period, as the proportion of Adivasis living below PL fell by 13 percentage points. There are several reasons for the slow decline in poverty among the Adivasis, which are discussed in later sections of the chapter.

In general, Central India has lagged in terms of economic growth, and progress has been modest in terms of people coming out of poverty. However, the extent of economic marginalization among the Adivasi communities continued to intensify when we compare their status to Dalits and the general population. Although the region is home to the majority of the Adivasi population in the country, there are legislative provisions and safeguards aimed at the well-being of these communities in this region. In terms of people coming out of poverty, the proportion of people living below PL fell by 12 percentage points between 1993-1994 and 2004-05 for the general population, but the proportion of people living below PL has increased by 36 percentage points. In fact, almost a majority (49%) of Adivasis are now experiencing extreme poverty, as they continue to languish below the poverty line. In the CITB, Odisha (64%), Maharashtra (62%), Jharkhand (52%) and West Bengal (50%) are the states with the majority of the Adivasis living below the poverty line according to the last available data.

The current methodology for estimating poverty lines and poverty ratios is based on the recommendations of the Tendulkar Committee. Accordingly,

Table 1.5b State-Wise Poverty Ratios Among SCs and STs (1993–94, 2004–05, 2011-12)

S.No.	*States*	*1993–94*			*2004–05*				*2011-12*		
		SC	*ST*	*All*	*SC*	*ST*	*OBC*	*Others*	*SC*	*ST*	*Total*
1	West Bengal	45.3	**62.0**	40.8	29.5	**42.4**	18.3	27.5	22.6	**50.1**	22.5
2	Jharkhand*	N/A	**N/A**	N/A	57.9	**54.2**	40.2	37.1	40.4	**51.6**	40.8
3	Odisha	49.0	**71.3**	49.7	50.2	**75.6**	36.9	23.4	41.4	**63.5**	35.7
4	Rajasthan	38.4	**46.2**	26.5	28.7	**32.6**	13.1	8.2	18.6	**41.4**	16.1
5	Gujarat	32.3	**31.2**	22.2	21.8	**34.7**	19.1	4.8	22.3	**36.5**	21.5
6	Maharashtra	51.6	**50.4**	37.9	44.8	**56.6**	23.9	18.9	23.8	**61.6**	24.2
7	Andhra Pradesh	26.0	**25.7**	15.92	15.4	**30.5**	9.5	4.1	13.1	**24.1**	11.0
8	Chhattisgarh*	N/A	**N/A**	N/A	32.7	**54.7**	33.9	29.2	48.2	**52.6**	44.6
9	Madhya Pradesh	45.8	**56.7**	40.6	42.8	**58.6**	29.6	13.4	41.3	**55.3**	35.7
	CITB	30.3	**35.8**	24.1	35.3	**47.7**	24.4	19.2	30.2	**48.5**	28.0
	All India	48.1	**51.9**	37.3	36.8	**47.3**	26.7	16.1	31.5	**45.3**	25.4

*Jharkhand and Chhattisgarh were formed on 15th November 2000 and 1st November 2000, respectively.

Source: GOI, Planning Commission 11th Five Year Plan, 2007–2012, Volume1, Inclusive Growth, GOI, Planning Commission, Eleventh Five Year Plan, 2007-2012, Volume I, Inclusive Growth. Working paper on Social, Religious and Economic Groups India and its largest States, by Arvind Panagariya, Columbia University.

the rural poverty line was estimated at ₹972 per capita/month and ₹1407 for urban India.[18] With regard to state-specific rural and urban poverty lines, the Committee had revised the expenditure by adjusting the urban state-specific poverty lines of 2004–05, with the Fisher index of changes in state-level urban prices between 2004–05 and later years.

Government interventions through various programmes have contributed to efforts to reduce poverty. In rural India, poverty for all social groups was reduced by almost half (49 percentage points). At the same time, urban poverty fell by a larger margin (57 percentage points). In CITB, poverty was more pronounced with more BPL households (when compared to the all-India average). But poverty reduction efforts led to 34 percentage points decline in the proportion of people living in rural areas between 1993–94 and 2011–12. In the same time period, the proportion of BPL households living in urban areas of CITB fell by 21 percentage points. When we compare the BPL households among the general population and the STs, we perceive some interesting contrasts. At an all-India level, the proportion of BPL ST households living in rural areas fell by five percentage points and 18 percentage points in urban areas between 1993/94 and 2011/12. But in CITB, the situation of the STs living in rural areas worsened, with the proportion of BPL ST households increasing by 1.5 percentage points between 1993/94 and 2011/12. Although the economic conditions of the ST households living in urban areas of CITB did improve as the percentage of BPL households dropped by 17 percentage points between 1993/94 and 2011/12.

When we look at individual state's effort to reduce poverty, Jharkhand stands out as the proportion of BPL households fell by 54 percentage points. But one should be careful with interpreting the numbers, since Jharkhand became a new state on 15th November 2000. In 1993–94, Jharkhand was still part of Bihar. Odisha is another state from the region which has witnessed considerable decline in rural poverty for the general population, with the proportion of BPL falling by 43 percentage points. With regard to urban poverty, these states from CITB made much slower progress. Jharkhand once again was more successful in reducing urban poverty for all the population. There was a decline of 35 percentage points in the HCR for the total population from 1993–1994 to 2011–12. Madhya Pradesh also made commendable progress in reducing urban poverty for all the population as the HCR for all the population fell by 27 percentage points for the same time period.

Deprivation of the STs continued to exist when compared to the rest of the population, including Dalits. Between 1993-94 and 2011-12, at an all-India level, the rural and poverty levels have gone down for all social groups by 73 percentage points. The decline in Surprisingly, two of India's most affluent states, Gujarat and Maharashtra, witnessed an increase in the percentage of ST BPL households between 1993–94 and 2011–12. In Gujarat, the ST BPL increased by 10 percentage points in rural areas, but urban situation for the ST improved – the proportion of ST BPL fell by 12 percentage

Table 1.5c State-Wise Percentage of Population Below Poverty Line Over Time – General Population

S.No.	*States*	*Rural*				*Urban*			
		1993–94	*2004–05*	*2009–10*	*2011–12*	*1993–94*	*2004–05*	*2009–10*	*2011–12*
1	West Bengal	42.5	38.2	39.4	11.6	31.2	24.4	31.7	10.5
2	Jharkhand	65.9	51.6	8.1	11.5	41.8	23.8	12.8	7.2
3	Odisha	63	60.8	19.3	19.9	34.5	37.6	25	16.5
4	Rajasthan	40.8	35.8	0.2	7.7	29.9	29.7	1.6	9.2
5	Gujarat	43.1	39.1	11.5	6.8	28	20.1	6.9	4.1
6	Maharashtra	59.3	47.9	42	35.7	30.3	25.6	22.9	21
7	Andhra Pradesh	48.1	32.3	22.8	11	35.2	23.4	17.7	5.8
8	Chhattisgarh	55.9	55.1	56.1	44.6	28.1	28.4	23.8	24.8
9	Madhya Pradesh	49	53.6	12	9.1	31.8	35.1	12.1	5
	CITB	**52.0**	**46.0**	**23.5**	**17.5**	**32.3**	**27.6**	**17.2**	**11.6**
	All India	50.1	41.8	33.8	25.7	31.8	25.7	20.9	13.7

Source: Planning Commission, 2013.

Table 1.5d State-Wise Percentage of Population Below Poverty Line Over Time – Tribal Population

S.No	*States*	*Rural*					*Urban*				
		1993–94	*1999–2000*	*2004–05*	*2009–10*	*2011–12*	*1993–94*	*1999–2000*	*2004–05*	*2009–10*	*2011–12*
1	West Bengal	62.0	50.0	42.4	32.9	50.1	19.41	31.88	25.7	20.6	44.5
2	Jharkhand	-	-	54.2	51.5	51.6	-	-	45.1	49.5	28.7
3	Odisha	71.3	74.0	75.6	66.0	63.5	64.6	59.6	61.8	34.1	39.7
4	Rajasthan	46.2	25.3	32.6	35.9	36.5	13.2	20.7	24.1	28.9	21.7
5	Gujarat	31.2	29.11	34.7	48.6	41.4	35.5	36.7	21.4	32.2	23.3
6	Maharashtra	50.4	43.6	56.6	51.7	61.6	61.1	43.0	40.4	32.4	23.3
7	Andhra Pradesh	25.7	23.8	30.5	40.2	24.1	46.7	45.0	50	21.2	12.1
8	Chhattisgarh	-	-	54.7	66.8	52.6	-	-	41	28.6	35.2
9	Madhya Pradesh	56.7	56.3	58.6	61.9	55.3	65.3	52.6	44.7	41.6	32.3
	CITB	**49.1**	**43.1**	**48.9**	**50.6**	**48.5**	**43.7**	**41.3**	**39.3**	**32.1**	**29.0**
	All India	51.9	45.7	47.2	47.4	45.3	41.1	34.8	33.3	30.4	24.1

Source: Planning Commission, 2013.

points. In Maharashtra, like Gujarat, the percentage of ST BPL increased marginally in rural areas but reduced significantly in urban areas – the proportion of ST BPL fell by 38 percentage points. West Bengal with 5% tribal population witnessed rapid decline in urban areas for the STs – the proportion of ST BPL households increased by 27 percentage points from 1993–94 to 2004–05.

Labour Force and Employment

In India, the majority of the workforce is employed in informal sector The informal or unorganised sector as per the National Commission for Enterprises in the Unorganised Sector (NCEUS)[19] refer to: "Those unincorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services, which operated on a proprietary or partnership basis and with less than ten workers" (NCEUS 2007, p. 3). Workers in the unorganized sector do not have employment benefits, including job stability, regulated working hours, or social benefits (e.g., health insurance, maternity leave, or pensions) (NCEUS 2007, p. 3). In the economy, agriculture constituted 48% of the employment while 97% of the agricultural wage workers did not have any written contracts or social security benefits. In the non-agriculture sector, which accounted for 26% (service) and 24% (industry) of the workforce, 78% of its jobs were informal. The Government of India (Ministry of Skill Development and Entrepreneurship) has taken several initiatives to skill 400 million youth by 2022. The report noted that two percent of workforce received some form of technical skill training compared to the other developed countries including South Korea (96%), Japan (80%), Germany (75%), UK (68%) and China (40%). With regard to the Adivasi communities, there were almost no Adivasis receiving training, formal or non-formal. While the government offers equal access to Adivasi and Dalits to skill development, few interventions have been launched targeting Adivasi youth to ensure an increase in skill development.[20] While the government recognizes the challenges of integrating and accessing Adivasis

Table 1.6 Labour Informality Across Social Groups- Per 1000 distribution of households by household type

Groups	*Self Employed In*		*Casual Labour In*		*Regular wage/ Salary Earning*	*Other*
	Agriculture	*Non-Agriculture*	*Agriculture*	*Non-Agriculture*		
ST	414	81	245	139	63	59
SC	195	142	314	213	85	51
OBC	366	163	196	126	90	59
All	343	155	210	135	96	61

Source: National Sample Survey, 68th Round (2011-12), p.66-69

and Dalits in the development of skills, this is evident from the lack of data to understand the extent of the problem. Consequently, labour informality continues to be high among the Adivasis compared to the other groups as evident from the National Sample Survey, 68th Round (2011-12). The data suggests that Adivasis, compared to all other groups, tend to operate as marginal and small cultivators ((own land than 2 ha.), and likely to be self-employed, but with declining agricultural productivity they are also forced to operate as agricultural labourer. Compared to all other social groups, Adivasis are also the least likely to be employed in salaried jobs that receive regular wages. They are also the least likely to be employed in salaried jobs receiving regular wages.

The census classifies the workers into two categories i.e., main workers[21] and marginal workers.[22] A gender-wise analysis of the two categories reveals some interesting contrasts (irrespective of the social class) across India and the CITB region. Across India and the CITB, three-fourths of the male working-age population across all social groups are employed as main workers. In the CITB states, mostly male operated as main workers – Odisha (82%), Gujarat (81%) and Jharkhand (77%). Similarly, SC males were employed as main workers in West Bengal (83%), Odisha (81%) and Gujarat (79%). Comparatively, there is predominance of women operating as marginal workers across India and CITB. Except West Bengal and Jharkhand, women workforce represents almost all marginal workers, which has witnessed higher growth in the past two decades (1991–2011) than the main workers.

Table 1.7a State-Wise Percentage Distribution of Main Workers by Sex

States	*All social groups*		*SC*		*ST*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
West Bengal	84.4	15.6	82.8	17.2	68.2	31.8
Jharkhand	76.8	23.2	76.0	24.0	66.3	33.7
Odisha	82.1	17.9	80.6	19.4	72.8	27.2
Rajasthan	72.4	27.6	71.2	28.8	66.2	33.8
Gujarat	81.4	18.7	79.1	20.9	60.8	39.2
Maharashtra	68.5	31.5	64.9	35.1	57.9	42.1
Andhra Pradesh	65.0	35.0	58.9	41.1	55.1	44.9
Chhattisgarh	67.9	32.1	65.8	34.2	64.9	35.1
Madhya Pradesh	72.1	27.9	70.5	29.5	60.8	39.2
CITB	74.5	25.5	72.2	27.8	63.7	36.3
All India	75.4	26.6	72.6	27.4	63.9	36.1

Source: Office of the Registrar General and Census Commissioner (India)

Table 1.7b State-Wise Percentage Distribution of Marginal Workers by Sex

States	*All social groups*		*SC*		*ST*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
West Bengal	55.54	44.46	53.07	46.93	45.42	54.58
Jharkhand	50.8	49.2	53.14	46.86	46.47	53.53
Odisha	45.48	54.52	48.29	51.71	38.36	61.64
Rajasthan	34.59	65.41	36.47	63.53	35.53	64.47
Gujarat	32.56	67.44	36.89	63.11	29.9	70.1
Maharashtra	46.38	53.62	49.19	50.81	42.51	57.49
Andhra Pradesh	42.68	57.32	41.71	58.29	39.31	60.69
Chhattisgarh	39.01	60.99	42.26	57.74	36.53	63.47
Madhya Pradesh	42.66	57.34	45.03	54.97	41.3	58.7
CITB	43.30	56.70	45.12	54.88	39.48	60.52
All India	49.22	50.78	51.28	48.72	40.23	59.77

Source: Office of the Registrar General and Census Commissioner (India)

This chapter compares the data from the two censuses (2001 and 2011) to study the occupational distribution of Adivasi communities operating in the household industry and as other workers. The household industry encompasses small-scale industries, cottage industries or people working in non-factory establishments where they were engaged in the production, processing, servicing, or repairing, but not engaged in trade. About 93% of the entire household industry is unorganized or informal, so the collection of comprehensive data on the number of workers and their salaries remains virtually impossible for any agency. According to the latest census, 4% of workers across all social groups, 3% of Dalits and two percent Adivasi workers work in the household industry, indicating a marginal decline from the previous census.

In the "other workers" category, the census includes all those unidentified sources of income and with unspecified sources of subsistence and not engaged in any economically productive work during the reference period (that is six months or more). Most of the working-age population operating as "other workers" are from urban India. This category as per the census definition includes beggars, vagrants, prostitutes, rentiers, persons living on remittances, agricultural or non-agricultural royalty, convicts in jails or inmates of penal, mental, or charitable institutions doing no paid or unpaid work and persons who are seeking/available for work. There are fewer STs (19%) engaged as other workers compared to 36% SCs and 42% of the general population.

The "non-workers" constitute people who do not participate in any economic activities (paid or unpaid) and tend to perform household duties like

Table 1.7c Occupational Distribution: Percentage of Working and Non-Working Population – SCs, STs and All Social Groups

	India	*Rural*	*Urban*
	Total workers		
All social groups	46.1(39.1)	48.9(41.8)	39.9(32.8)
SC	47.8(40.4)	50.0(42.5)	41.0(33.1)
ST	58.0(49.1)	59.8(50.4)	42.6(34.6)
	Main workers		
All social groups	34.6(n.a)	34.5(n.a)	34.9(n.a)
SC	33.8(n.a)	33.6(n.a)	34.4(n.a)
ST	37.6(n.a)	37.9(n.a)	35.0(n.a)
	Cultivators		
All social groups	24.6(31.7)	33.0(40.2)	2.8(2.8)
SC	14.8(20)	18.2(23.5)	1.7(1.8)
ST	34.5(44.7)	36.9(47.1)	5.8(6.6)
	Agricultural labour		
All social groups	30.0(26.6)	39.3(33.1)	5.5(4.7)
SC	45.9(45.6)	55.2(52.2)	10.5(11)
ST	44.5(36.9)	47.1(38.4)	13.3(12.4)
	Household industry		
All social groups	3.8(4.2)	3.4(3.9)	4.8(5.2)
SC	3.2(3.9)	3.0(3.7)	4.0(4.8)
ST	1.8(2.1)	1.7(2.1)	2.5(2.9)
	Other workers		
All social groups	41.6(37.6)	24.3(22.8)	86.9(87.3)
SC	36.1(30.5)	23.6(20.6)	83.8(82.4)
ST	19.2(16.3)	14.3(12.5)	78.3(78.2)
	Non-workers		
All social groups	53.3(60.9)	50.4(58.3)	59.4(67.8)
SC	52.2(59.6)	50.0(57.5)	59.0(67.9)
ST	42.0(50.9)	40.2(49.6)	57.4(65.4)

Census 2001 in parentheses.

Source: Office of the Registrar General and Census Commissioner (India)

attending to the daily chores, looking after the family and pensioners. It is evident from the last two censuses that the proportion of people who do not contribute to any economic activity is declining. In 2011–12, STs operating as "non-workers" fell by 18%, while for the SCs it declined by 12% and all other social groups by 16%. The decline in "non-workers" can be the result of fast-growing economy, where more paying jobs are created resulting in the rise of main and marginal workers. In the case of tribal communities, as people leave agriculture and agriculture-related activities due to low productivity and rising input costs, they are forced to engage in distress or seasonal migration, where women accompany their husbands to cities and take up casual manual labour rather than staying at home and taking care of the children, resulting in decline in the number of non-workers.

Table 1.8a Percentage Distribution of Households by Household Classification Across Different Social Groups

Social groups	*Self-employed in*				*Wages/ salaried employment*	*Others*
	Cultivation	*Livestock farming*	*Other agricultural activities*	*Non-agricultural enterprise*		
ST	51.0	0.8	3.7	5.5	32.9	6.2
SC	30.9	1.5	4.8	11.4	43.2	9.0
OBC	42.6	2.2	2.8	13.4	31.2	7.8
All	42.9	1.8	3.5	11.6	32.4	7.9

Source: 70th Round of NSS, 2013 Report No. 571: Household Ownership and Operational Holdings in India.

The 70th round of NSS (2013) showed that Adivasi communities have been over-dependent on the primary sector,[23] with majority (51%) depending on, agriculture and allied activities. For all other social groups (43%), dependence on agriculture and related activities remains slightly lower in comparison. Non-farm employment accounted for a much smaller share of rural employment, as infrastructure challenges prevent the establishment of industries. Among all social groups, 13% OBC households relied on the generation of livelihoods from the non-farm sector, followed by 11% SC households. The ST households were least likely to engage in non-farm sector employment, with 6% ST households relying upon it for livelihood.

It should also be noted that Adivasi households operate in agriculture, either as cultivators or agricultural labourers. But the last two censuses (2001 and 2011) revealed that Adivasi households are increasingly moving away from cultivators to workers, indicating growing landlessness among them due to declining agricultural productivity from climate change, and other factors. A comparison between Census of 2001 and 2011, revealed that the proportion of agricultural labourers grew by 13% between the two censuses while the proportion of cultivators fell by 22%

Land is a crucial asset for rural communities, especially the Adivasis. In 2010-11, land ownership in the CITB was highest among the Adivasi households of West Bengal (84%), but the size of the operational holding was less than one hectare. This was followed by Odisha (67%) Andhra Pradesh (60%), where the Adivasi households were engaged as marginal cultivators operating in less than one hectare of land. Maharashtra (34%) and Madhya Pradesh (24%) emerged as the top two states with small-size landholdings between one and two hectares. In the medium-sized landholding category, Gujarat (10%), Madhya Pradesh (9%), and Chhattisgarh (9%) have Adivasi households cultivating landholdings between four and ten hectares. As expected, the proportion of Adivasis with operational landholdings of more than two hectares was negligible for all states. Experience with the distribution of operational assets for the Adivasis in the rest of India is quite different and more balanced. 27% report ownership of land between two and

four hectares, and 24% report ownership between four and ten hectares. 10% of the Adivasis who cultivated at all levels of India reported land ownership of more than ten hectares.

In 2015–16, fragmentation of agricultural land intensified for Adivasis. With the exception of Gujrat and Maharashtra, the proportion of households with less than one hectare of land increased. On the one hand, most states in the CITB and West Bengal have seen a decline in ownership in the categories of small, semi-medium, medium-sized landowners. This phenomenon took place at all-Indian level, as the majority of Adivasi households reported (56%) having less than one hectare of land. This was a three and a halffold increase in the proportion of marginal farmers within a five-year

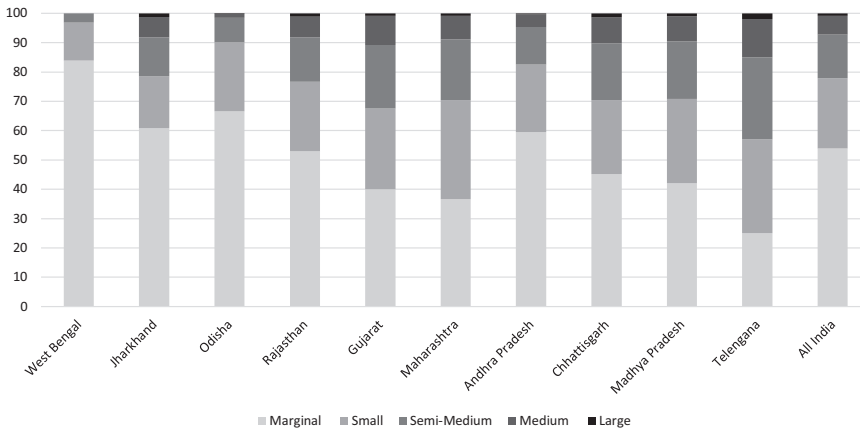

Figure 1.1a State-wise percentage distribution of number of operational holdings for STs (2010–11)

Source: Agricultural Census, 2015-16

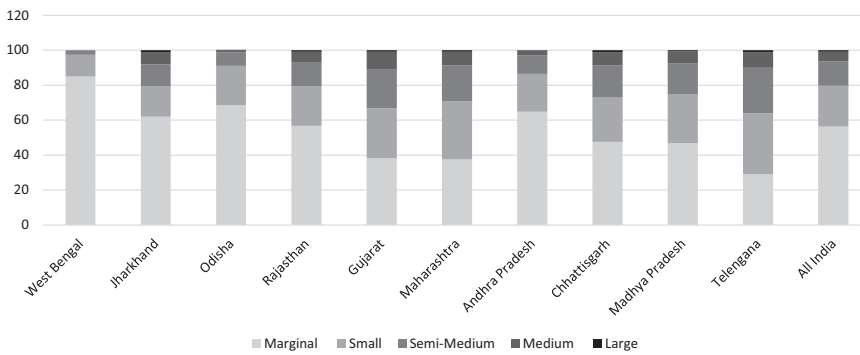

Figure 1.1b State-wise percentage distribution of number of operational holdings for STs (2015–16)

Source: Agricultural Census, 2015-16

period. On the other hand, the proportion of households reporting land ownership between two and four hectares has nearly fallen by half to 14%. While the proportion of households reporting land ownership between four and ten hectares fell by a quarter and those with more than ten hectares fell to negligible one percent, when previously 10% reported a size of more than ten hectares.

The results of the latest agricultural census are consistent with the NSS 77th round. 9% of Adivasis and Dalits reported being landless, less than the Other Backward Class (OBC) and the general population. Although Adivasis (72%) reported having less than one hectare of land, it was lower than all other social groups. This suggests that the operational activities of the Adivasis were proportionately more than all other social groups. However, land ownership has not contributed to an improvement in economic status. Today, tribal areas are experiencing the highest poverty level due to the dominance of rain-fed farming, monocropping and existing agro-climatic conditions.

Migration poses a significant challenge for the Adivasis in India, especially in CITB. There is a significant body of literature that discusses the non-linear relationship between migration and income and wealth (Stark and Bloom, 1985; McKenzie and Rapoport, 2007; Dustman and Okatenko, 2014). Tribal migration in Western India incurs significant costs because it exacerbates debt and dependence, while exposing migrants to exploitation, physical and mental hardship (Moses, Gupta, and Shah, 2005). The study by Deshingkar et al. (2008) also found that in 2000–2001, geographically isolated tribal villages in Madhya Pradesh, 75% of the population in Madhya Pradesh was forced to work as a manual labour in the agricultural and non-agriculture sectors (Deshingkar et al. 2008, p. 615). The state with the largest Adivasi population was lagging

Table 1.8b Percentage Distribution of Number and Area of Operational Holdings by Social Groups

Size category of ownership holdings (in ha.)	*Percentage distribution households by social groups*			
	ST	*SC*	*OBC*	*Others*
Landless (≤ 0.002)	9.0	9.0	8.5	8.2
Marginal (0.002–1.000)	71.8	84.8	75.7	76.5
Small (1.000–2.000)	13.5	4.2	9.5	9.3
Semi-medium (2.00–4.00)	4.6	1.7	4.5	4.4
Medium (4.000–10.000)	1.0	0.3	1.6	1.4
Large (>10.000)	0.0	0.0	0.2	0.2

Source: 77th Round of NSS, 2019

behind in terms of industrialization, while the agricultural sector suffered from low agricultural productivity due to land fragmentation. As a result, tribal workers migrated to work in the informal sector to generate additional income, repay debts, or buy assets, even if migration continues to be fraught with hardship and occupational hazards due to the widespread flouting of labour laws and industrial safety by callous employers (Deshingkar et al. 2008, p. 626).

Migration of the tribal communities from Jharkhand, Odisha, Madhya Pradesh, and Chhattisgarh has been taking place from the eighteenth century, under the British administration. But distress (circular) migration, or rural–urban migration, is emerging as a dominant pattern for tribal communities across India.[24] Tribal migrants have found jobs in factories, agro-processing plants, as domestic workers and in construction sites. A Planning Commission report noted 46% tribal women from Chhattisgarh, Jharkhand, Madhya Pradesh, and Odisha migrate to Delhi as domestic workers, wage labourers, and workers at shops and hotels.[25] According to the latest tribal health report, majority Adivasis (55%) have been forced to migrate outside their traditional habitats due to livelihoods and educational challenges faced by households (Down to Earth, November 21, 2018).

Household Assets

The possession of assets by households is seen as an indicator of the socio-economic status of different social groups. To understand asset ownership among social groups, including the Adivasis, we will use data from the last two censuses (2001, 2011). When we compare bicycle ownership, the proportion of Adivasi with bicycle ownership increased one-and-a-half times, while the ownership of bicycles for all social groups increased slightly by two percent. The increase in cycle ownership among Adivasis could be due to various state welfare policies targeting them. The country also experienced mobile technology growth across the country, with the majority (53%) of all social groups owning mobile phones, but proportionately fewer Adivasis owning mobile phones (31%), which is due to these communities living in geographical isolation. In recent years, fewer people owned radios, but the popularity of television gained popularity - all social groups (45%) and Adivasis (22%) owned televisions. The ownership of four-wheelers did not increase among all social groups, including the Adivasis. Overall, the proportion of Adivasis with no assets was higher (38%) than all social groups (19%). This was an improvement from the previous census, when the majority of Adivasis (54%) had no assets, compared to all groups (35%).

Households are critical asset for any social group. When comparing the housing situation among all social groups, including the Adivasis, the Adivasis experienced worse living conditions than the rest. The majority (53%)

Table 1.9a Assets Possessed by the Households Among ST and All Social Groups

Social Groups	*Radio/ Transistor*	*Television*	*Computer/ Laptop*		*Telephone*			*Bicycle*	*Scooter/ Motorcycle/ Moped*	*Car/Jeep/ Van*	*TV, Computer/ Laptop, Telephone/ Mobile & Scooter/Car*	*None of the Assets*[*]
			With Internet	*Without Internet*	*Landline/ Fixed Only*	*Mobile Only*	*Both*					
	2011											
ST	14.0	21.5	0.8	4.4	2.0	30.8	3.8	82.2	8.9	1.5	1.2	37.5
All	19.8	45.3	2.8	6.2	3.9	52.5	5.6	44.5	19.8	4.1	4.1	18.6
	2001											
ST	21.8	12.1	–	–	2.5	–	–	32.0	4.1	0.9	–	54.0
All	35.1	13.6	–	–	9.1	–	–	43.7	11.7	2.5	–	34.5

[*] Households did not have radio/transistors to car/jeep/van
Source: Office of the Registrar General and Census Commissioner (India)

Table 1.9b Condition of Houses Occupied by STs and Other Households

Conditions	*Good*		*Liveable*		*Dilapidated*	
	ST	*All*	*ST*	*All*	*ST*	*All*
Rural	37.6	45.9	55.9	47.6	6.6	6.5
Urban	59.7	68.4	35.9	28.7	4.4	2.9
Total	40.6	53.1	53.1	41.5	6.3	5.4

Source: Office of the Registrar General and Census Commissioner (India)

of all social groups occupied good houses when the proportion was lower for the Adivasis (41%). Although the majority (53%) of Adivasis lived in liveable houses compared to all social groups (42%), the proportion of households living in dilapidated houses was almost similar between Adivasis and other groups.

Conclusion

Constituting 9% of the Indian population, Adivasis have gained the least and deprived the most since Independence. Today, Adivasi deprivation is the highest compared to any other social group, making it imperative for all concerned stakeholders to rethink their issues. To understand the development paradox for the Adivasis in India, we rely on the Advocacy Coalition Framework to understand the political process formulated by Sabatier and Jenkins-Smith (1993) in the American context. The policy process consists of a policy subsystem in which competing actors try to influence politics and initiate policy changes using a normative and empirical assessment of the public issue. As a result, policy change becomes the product of the winning actor's political belief. In the case of million Adivasis, the policy process has not adequately represented the interests of the groups. In India, 8.7% of seats are reserved for the Scheduled Tribes in legislative assemblies, which is almost proportionate to the country's Adivasi population.[26] But their representation in the Parliament has a limited impact, as the Adivasi lawmakers fail to be appointed in various committees dealing with legislative changes or amendments, budgetary appropriation or formulating new policies. An analysis by India Spend (June 27, 2021) showed that in the 17th Lok Sabha, the presence of SC / ST members is not reflected in all 24 standing committees, and three financial committees-Eight out of 27 committees have proportional representation by SC / ST (25.4%), which has not changed since the 15th Lok Sabha. In addition, the same report highlighted that SC / ST lawmakers have the highest representation in the Social Justice Committee (60%) and the least (7%) in the Public Accounts Committee (India

Table 1.10 Proportion of Budget Allocation towards Adivasis

Year	*Total Expenditure through Budget (₹.Cr.)*	*Total Expenditure for Scheduled Tribes (₹.Cr.)*	*% Share of Total Budgetary Expenditure for Scheduled Tribes*
2011-12	1304364.98	17453.61	1.3
2012-13	1410371.60	20184.10	1.4
2013-14	1559446.77	22039.04	1.4
2014-15	1663673.05	19920.72	1.2
2015-16	1790782.69	21216.54	1.2
2016-17	1975193.71	21810.56	1.1
2017-18	2141973.06	31913.72	1.5
2018-19	2315112.61	36889.66	1.6
2019-20	2686329.95	46911.47	1.7
2020-21	3509836.38	49433.17	1.4

Source: Expenditure Budget, various years, share calculated by the author

Spend, June 27, 2021). This seems to be a violation of the Constitutional mandate (Article 46):

> *[T]he State shall promote with special care the educational and economic interests of the weaker section of the people, and in particular, of the Scheduled Castes and the Scheduled Tribes, and shall protect them from social injustice and all forms of exploitation.*

The invisibility of the Adivasi interests is visible in the budgetary stagnation to promote and protect Adivasi interests. Over the last decade (from 2011-12 to 2020-21), the budget allocation of the Adivasis has never exceeded two percent of GDP, when the Constitution mandate suggests that the budget allocation of the Adivasis should be directly proportional to the population.

To reiterate, the public debate on economic development should go beyond the conflict between supply and demand-side economics and promote more inclusive development. For the Adivasis of CITB, the goal of integration with broader economic growth remains a distant dream. Today, the economic deprivation of these communities has been intensified by threats of climate change and agrarian distress. In order to promote the inclusive growth model, it is therefore recommended that central and state governments begin to implement targeted programmes that address the overall development of communities. The chapter recommends that the government establish meaningful partnerships through various stakeholders to ensure better programme delivery. The Ministry of Tribal Affairs, as a nodal agency for Adivasi development, should continue to seek cooperation with research organizations, academic institutions and

professional institutions to build the knowledge base to make informed policy decisions.

The government should also try to reach out directly to representatives of various Adivasi communities and non-governmental organisations working on tribal development issues, while strengthening grassroots governance (e.g. Gram Panchayats and Gram Subhas) so that they can play a more effective role in implementing interventions in a result-oriented way.

Notes

1 Roxy, M.K., Ghosh, S., Pathak, A., Athulya, R., Mujumdar, M., Murtugudde, R., Terray, P., and Rajeevan, M. (2017). A threefold rise in widespread extreme rain events over central India. *Nature Communications*, *8*(708), 1.

2 Raina, R.S., Ravindra, A., Ramachandrudu, M.V., and Kiran, S. (2015). Reviving knowledge: India's rainfed farming, variability and diversity. *Briefing*. August 2015. London: IIED. Retrieved on 29th October 2019 from https://pubs.iied.org/pdfs/17307IIED.pdf

3 National Rainfed Area Authority. (2012). *Prioritization of Rainfed Areas in India*. New Delhi: National Rainfed Area Authority, Planning Commission, Govt. of India. February 2012. Retrieved on 29th October 2019 from www.indiaenvironmentportal.org.in/files/file/Rainfed-final.pdf

4 Office of Registrar General of India. Ministry of Home Affairs. *Indian States by Area*. Retrieved on 30th November 2017 from http://statisticstimes.com/geography/area-of-indian-states.php.

5 Forest Survey of India. (Ministry of Environment & Forests) *India State of Forest Report, 2015*. Retrieved on 30th November 2017, from http://fsi.nic.in/isfr-2015/isfr-2015-forest-cover.pdf

6 There is no data available for Telangana since it was formed on 2nd June 2014. The existing data is for the year 2009–10. *Source*: Directorate of Economics and Statistics, Department of Agriculture and Cooperation. Retrieved: Table 4.5**b Area, Production and Yield of Food grains during 2008–2009 and 2009–2010 in major producing States along with coverage under irrigation** from http://eands.dacnet.nic.in/ on 30th November 2017.

7 There is no data available for Telangana since it was formed on 2nd June 2014. The existing data is for the year 2009–10. Source: Directorate of Economics and Statistics, Department of Agriculture and Cooperation. Retrieved: Table 4.5**b Area, Production and Yield of Food grains during 2008–2009 and 2009–2010 in major producing States along with coverage under irrigation.** Retrieved on 30th November 2017 from http://eands.dacnet.nic.in/latest_20011.htm.

8 There is no data available for Telangana since it was formed on 2nd June 2014. The existing data is for the year 2009–10. *Source*: Directorate of Economics and Statistics, Department of Agriculture and Cooperation. Retrieved: Forest Survey of India. (Ministry of Environment & Forests) *India State of Forest Report, 2015*. Table 1.1 **State-Wise Irrigated Area-2001–02 to 2010–11** Retrieved on 30th November 2017, from http://fsi.nic.in/isfr-2015/isfr-2015-forest-cover.pdf from http://eands.dacnet.nic.in/latest_20011.htm.

9 Rainfall-Statistical Yearbook of India. (2016). Retrieved on 30th November 2017 from www.mospi.gov.in/statistical-year-book-india/2016/203.

10 In 1864, the Imperial Forest Department was established to protect forests. Accordingly, both the Indian Forest Act of (1878, 1927) and National Forest Policy (1894), sought to consolidate and reserve the areas under forest cover

to regulate movement and transit of forest produce and duties levied on timber. From the academic standpoint, two streams of scholarships holding contradictory views on the ecological consequences of forestry management under British administration. Stebbing (1922) opined that the colonial administration was instrumental in checking deforestation and interrelated problems of soil erosion, landslides, etc. Guha (1983), on the contrary, claimed that the late eighteenth century was a watershed moment in India's ecological history since the imperial administration was engaged in the fierce onslaught of Indian forest and forest resources, all under the guise of "scientific management" of forests. Das's (2011) work traced the worsening and irreversible damage to Indian ecology following the introduction of railways. On the one hand, private companies depended on local forests for timber for building railway sleepers or ties. On the other, by mid-1860, when the railways started operating to transport people and goods, another demand developed in the form of firewood for railway fuel, contributing to further deforestation (Das, 2011). This period also witnessed clearing of large tracts of mixed tropical trees (producing *mahua*, mangoes, jackfruit, tamarind, bamboo and berries) with profitable softwood species (pine, teak and eucalyptus) to meet the needs of the railways and other industries (Chattopadhyay, 2012, p. 57).

11 Indenture labourers refer to a system of bonded labour following the abolition of slavery by colonial administration. For more see: *Indentured labour from South Asia (1834-1917)*. Retrieved on May 7, 2022 from https://www.striking-women.org/module/map-major-south-asian-migration-flows/indentured-labour-south-asia-1834-1917#:~:text=Indentured%20labour%20was%20a%20system,Africa%20and%20South%20East%20Asia.

12 Popularly called the "Tea Tribes," numbering about 6,000,000 and living in pathetic conditions with large-scale variation in wages between men, women, and children with restricted mobility (Baishya, 2016).

13 Socio Economic and Caste Census. (2011). Retrieved on 29th October 2019 from https://secc.gov.in/aboutusReport

14 Working Group (1962), Task Force (1979), Lakdawala Committee (1993), and the Tendulkar Committee (2009)

15 The Expert Committee chaired by D.T. Lakdawala, estimation of poverty line was based on accepting the recommendations of the Task Force set up in 1979, headed by Y.K. Alagh. As per the Task Force, the Poverty Line (PL) as per the total monthly per capita consumer expenditure was ₹49.09 (rural) and ₹56.64 (urban) using 1973-74 prices as the base line (Manna, 2017, p.40)

16 To calculate the state specific PL is a two-step process. In the first step, for the base year (1973-74), using the standardized commodity basket corresponding to the national PL, one calculates its value as per the prevailing prices at the state level in the base year. The second step, adjusting the state PL to reflect the current prices for the current year by applying state-specific consumer price index (CPI). For more see: Planning Commission (2012) *Report Of The Expert Group To Recommend the Detailed Methodology For Identification Of Families Living Below Poverty Line In The Urban Areas*. New Delhi: Perspective Planning Division, Planning Commission, GoI.

17 The Tendulkar Committee was set up in 2005 but submitted its final report in 2009. The Committee marked a "radical departure" from the previous estimation of PL, as it opposed the use of calorie norm for urban and rural India, recommended a uniform "poverty line basket" (PLB) for the country, proposed a price adjustment based on data used for poverty estimation, and adding price indices for private expenditure on health and education. For more see: Planning Commission (2012) *Report Of The Expert Group To Recommend the Detailed Methodology For Identification Of Families Living Below Poverty*

Line In The Urban Areas. New Delhi: Perspective Planning Division, Planning Commission, GoI.

18 As per the Expert Group under the Chairmanship of Dr. C. Rangarajan to "Review the Methodology for Measurement of Poverty, constituted by the Planning Commission (2012)," used the methodology adopted by the Expert Group (Tendulkar) to compute the PL. It also called for the inclusion of nutritional security, clothing, housing, rest, conveyance, and "behaviourally determined other non-food expenses." For more see: *Rangarajan Report on Poverty*. Retrieved on May 5, 2022 from https://pib.gov.in/newsite/printrelease.aspx?relid=108291

19 The National Commission for Enterprises in the Unorganized Sector (NCEUS) was set up the central government in 2004, with the objective of promoting the "well-being of workers," and addressing livelihoods issues for those operating in the unorganized sector. For more see: Report on Conditions of Work and Promotion of Livelihoods in the Unorganised Sector. Retrieved on May 5, 2022 from https://msme.gov.in/sites/default/files/Condition_of_workers_sep_2007.pdf

20 Ministry of Rural Development has initiated a new skill development initiative within the Aajeevika Skills (Placement Linked Skill Development Scheme) called "Roshni" for youth from 27 most critical LWE affected districts (See for more details: Skills India Mission Operation. "Draft Tribal People Planning Framework." (Delhi, Ministry of Skills Development and Entrepreneurship, n.d.). Retrieved from http://www.skilldevelopment.gov.in/assets/images/Notification/Tribal%20People%20Planning%20Framework.pdf

21 Main workers are those workers who had worked for the major part of the reference period that is six months or more. Main workers engage in any economically productive activity and can be classified into four categories – cultivators, agricultural labourers, household industry and other workers.

22 Marginal workers, as defined by the census, do not work for a major part of the year, that is those who worked less than 183 days or less than six months.

23 The primary sector comprises of agriculture, forestry, fishing, livestock, poultry, mining, and quarrying. Retrieved on 5th November 2019 from https://statisticstimes.com/economy/country/india-gdp-sectorwise.php

24 Retrieved on 5th November 2019 from http://planningcommission.nic.in/reports/sereport/ser/ser_mig.pdf.

25 Retrieved on 5th November 2019 from http://planningcommission.nic.in/reports/sereport/ser/ser_mig.pdf.

26 Retrieved on 5th November 2019 from https://mea.gov.in/Uploads/PublicationDocs/19167_State_wise_seats_in_Lok_Sabha_18-03-2009.pdf

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2 Tribal Agriculture
Context and Challenges

P.S. Vijayshankar

Introduction

It is universally acknowledged that the tribal communities or Scheduled Tribes (STs) are the most disadvantaged among the social groups in India on all indicators of social, economic and human development. In the literature on tribals, the narratives of "identity-based isolation" and "development through integration" run parallel right from the time of Independence (Wahi and Bhatia, 2018). This has been one of the recurrent themes in the Constituent Assembly debates between 1946 and 1949. With the onward march of developmental state, the emphasis increasingly shifted to the view of integrating Adivasis with the so-called mainstream through development. The logical corollary to this was to view tribal agriculture as "backward" and "primitive" needing urgent interventions for improvement of the production processes. What this has largely resulted in is a forced incorporation of tribals into the processes of development, without them gaining much from it. More importantly, evidence is accumulating that the tribals have been often the refugees or victims of that very process of development which has empowered other social groups. Land alienation, dispossession and displacement have been at the heart of this process. With 90% of coal and more than 50% of minerals, prospective dam sites and industrial enclaves mainly in tribal regions, tension over land loss grows, posing questions on our development strategy (GoI, 2014; Prabhu, 2018).[1] Following Harvey, this has been understood as the mechanism of accumulation by dispossession by which tribal societies are divested of land and are forcibly drawn into the path of capitalist accumulation and development (Harvey, 1982, 2004). Land is at the centre of all these discussions. The deep sense of indignity and hurt that the tribal communities feel on account of land alienation, erosion of traditional property rights (such as those over forests) and dispossession on account of development projects has pushed them to what has been termed as "left-wing extremism" and have converted tribal regions into an arena of violent conflicts over resource use. In this chapter, we will not discuss these issues which are well documented and covered elsewhere in this report.[2]

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While this narrative of development as destruction is indeed tenable, we feel that the opposite narrative that characterizes tribals as living harmoniously with nature without state intervention and tribal agriculture as "ecological agriculture" does not agree with the ground realities of tribal areas today. The conditions of life in tribal areas have altered fundamentally and there is indeed the problem of growing demographic pressure and absence of alternative livelihoods. Our focus in this chapter is on the state of tribal agriculture, the forces that are at work which reproduce poverty and resource degradation in tribal areas and the possible ways of strengthening the resource base of agriculture for improving the livelihoods of tribal communities at large.

Tribals are a numerical minority, forming only about 8% of the total population and have historically suffered discrimination and exclusion. We can see that some of the important features of the marginalization of the tribals derive from the unique aspects of tribal demography (Shah et al., 1998). Tribal demography shows the concentration of tribals in a few pockets within villages, blocks and districts even as they exist as a numerical minority of the whole region's population. According to the 2011 Census, nearly 55% of villages in India do not have any tribal population at all and in another 20% of villages, the tribal proportion is less than 20% of the total. Thus, in 75% of the villages, the share of tribal population is not more than 20%. There are only 18% villages in India, where tribal population constitutes 50% or more. This clearly shows the highly skewed nature of tribal demography in India and the resulting "enclavement effect" (Raza and Ahmad, 1990; Bakshi et al., 2015).

Tribal communities in most districts of India (outside the Northeast) form a minority of the district population. In this chapter, we divide districts and sub-district units based on the percentage share of tribal population in the total population into four categories:

- ST Pop/Tot P > 50% – Majority Tribal (MT);
- ST Pop/Tot P between 25% and 50% – Significantly Tribal (ST);
- ST pop/Tot P between 5% and 25% – Low Tribal (LT); and
- ST Pop/Tot P < 5% – Non-tribal (NT).

From the 2011 Census, we can see that in 319 out of total 616 districts in India, ST population is below 5% and in another 148 districts it is between 5% and 25%. Thus, in 467 districts (52% of the total), tribal population is below 25% of the total district population and these districts account for about 43% of tribal population in the country. The tribal majority districts are only 14% and they account for about one-third of the total tribal population in the country (Table 2.1).

This enclavement nature of tribal settlements is one of the important objective conditions leading to their marginalization and exclusion. We will use the previous classification of tribal settlements in this chapter to look at

Table 2.1 Distribution of Tribal Population Across Districts, 2011

	Category	*ST population range (%)*	*Districts (No.)*	*Total districts (%)*	*ST population (lakhs)*	*Total ST population (%)*
1	Majority tribal (MT)	>50	87	14	331.16	32
2	Significant tribal (ST)	25–50	62	10	259.10	25
3	Low tribal (LT)	5–25	148	24	356.01	34
4	Non-tribal (NT)	<5	319	52	92.12	9
	Total		**616**	**100**	**1,038.38**	**100**

Source: Census of India, 2011.

the state of agricultural production systems in tribal areas. The next section brings out a snapshot of the extent of deprivation in tribal regions. The third section provides a detailed descriptive outline of tribal agriculture. The fourth section analyses some of the key processes operational in tribal agriculture, which are instrumental in the massive resource emasculation in tribal regions. In the fifth and concluding section, we present the way forward in tribal regions. We outline a path to achieve a breakthrough in tribal agriculture, which is predicated on stepping up public investments and improving governance in the tribal regions.

Snapshots of Tribal Deprivation

Official data from different sources clearly show that the tribal communities and households are the most disadvantaged among all social groups in terms of social and economic indicators. We present a quick snapshot here.

Asset Inequality: Recent data reveal huge inequality in the ownership of assets between tribal communities and other social groups. The All-India Debt and Investment Survey, 2012, shows that the Average Value of Assets (AVA) per rural ST household in 2012 was ₹5,04,662, which was only about one-third that of the AVA of the households in "Others" category (₹16,61,048). This is true of urban areas as well (NSSO, 2013; Appendix Table 2.1, A-7).

Consumption Inequality: The 68th round of NSS shows glaring inequality in consumption expenditure between tribal and non-tribal groups, though it is somewhat less glaring than that of asset inequality. The Monthly Per Capita Consumption Expenditure (MPCE) of tribal households (₹1,122 in rural and ₹2,193 in urban areas) was 65% and 68% respectively of the MPCE of "Others" (₹1,719 in rural and ₹ 3,242 in urban areas) in 2011–12 (NSSO, 2014b, Table 2.2).

Table 2.2 Characteristics of Sub-Districts, 2011

	Characteristics	*MT*	*ST*	*LT*	*NT*	*All*
1	Number of sub-districts	898	490	1,453	3,114	5,955
2	Share in total sub-districts (%)	15	8	24	52	100
3	Total population (million)	62.4	61.2	244.3	794.0	1161.9
4	Tribal population (million)	45.4	21.8	28.7	7.8	103.7
5	Tribal population/Total population (%)	73	36	12	1	9
6	Share in total tribal population (%)	44	21	28	8	100
7	Households without					
A	– Electricity	50%	41%	30%	34%	35%
B	– Banking facilities	53%	49%	46%	40%	43%
C	– Drinking water in premises	83%	72%	64%	49%	55%
D	– Latrine	76%	72%	63%	50%	55%
E	Female illiteracy (%)	28	24	22	21	22

Source: Bakshi et al., 2015.

Nutrition Levels: 32% of tribal women and 45% of the tribal children are underweight while the figures for "Others" were 18% and 29% respectively. Incidences of both infant and under-5 mortality rates are high among tribal groups compared to non-tribal groups (MoHFW, 2017).

Literacy: Tribal female literacy in 2015–16 was 53% compared to 80% for "Others" category. The corresponding percentages for male literacy were 76 and 91 showing tribal male literacy was lower than that of males in Others social group.

Years of Schooling: 42% of the tribal women never attended a school and another 21% completed only less than seven years of schooling. This means that only 37% of tribal women have gone beyond seven years of schooling compared to 78% of women in the "Others" category.

"Refugees of Development": While tribals have largely been excluded from the gains of development, they have also been victims of the very processes of development which have benefitted other social groups. Of an estimated total of 20.4 million persons displaced on account of development projects, the share of tribals was around 30%. Another estimate shows that of the total 85 million tribals displaced on account of development projects, only 25% have been rehabilitated, leaving the remaining 75% as refugees of development (GoI, 2014, pp. 259–260).

Further evidence for the extent of deprivation can be obtained from the recent study on socio-economic indicators at the sub-district level (Bakshi et al., 2015). This chapter uses seven indicators of deprivation and combines them into a common deprivation index. We compare the four categories of sub-districts as defined earlier on their indicators of deprivation. We can see that on the indicators studied, MT and ST sub-districts, have performed considerably poorly than NT districts (Table 2.2).

Among the 1,000 sub-districts ranked low in the Backwardness Index, 372 are in MT category and another 100 are in ST category. In other words, 47% of the sub-districts identified by the study as "backward" are in MT and ST category even though these two categories together form only about 23% of the total sub-districts in India. It must be remembered that this Backwardness Index is about possession of basic amenities of life and does not take into account the income and asset position of the households.

Status of Tribal Agriculture

Distribution of Landholdings

Land is the primary asset in rural areas. Table 2.3 shows the distribution of operational holdings by size class of landholdings for STs and all social groups. While 85% of landholdings are in smallholder category for all social groups, cultivating about 45% of the area, the figures for STs are slightly lower at 78% and 40% respectively. The average size of landholdings for tribals was 1.53 hectares which is higher than the average size of landholding for all social groups taken together (1.15 ha). The problem in tribal areas is not so much the small size of landholdings per se as the low productivity of land due to inadequate support from the state.

We should also realize that STs are now mostly agriculturists and derive a major part of their livelihoods from farming. Data on per thousand distribution of working population by their source of livelihood from the 68th round of NSS (2011–12) showed that nearly 66% of the working population

Table 2.3 Distribution of Number and Area Operated by Size of Landholdings, 2013

	Landholding class	*All groups*			*STs*		
		Number (000)	*Area (000ha)*	*Average size (Ha)*	*Number (000)*	*Area (000ha)*	*Average size (Ha)*
1	Marginal	92,826 (67.1%)	35,908 (22.5%)	0.39	6,470 (53.9%)	3,144 (17.3%)	0.49
2	Small	24,779 (17.9%)	35,244 (22.1%)	1.42	2,877 (24.0%)	4,119 (22.6%)	1.43
3	Semi-medium	13,896 (10.0%)	37,705 (23.6%)	2.71	1,787 (14.9%)	4,831 (26.5%)	2.70
4	Medium	5,875 (4.2%)	33,828 (21.2%)	5.76	760 (6.3%)	4,363 (23.9%)	5.74
5	Large	973 (0.7%)	16,907 (10.6%)	17.38	111 (0.9%)	1,763 (9.7%)	15.88
6	All classes	138,349 (100.0%)	159,592 (100.0%)	1.15	12,005 (100.0%)	18,220 (100.0%)	1.52

Source: 70th Round of NSS, 2015 Report No. 571: Household Ownership and Operational Holdings in India, p. 14.

Table 2.4 Per '000 Distribution of Rural Working Population by Source of Livelihood, 2011–12

		ST	*SC*	*OBC*	*Total*
1	Self employed in agriculture	414	195	366	343
2	Agricultural labour	245	314	196	210
	Total agriculture	**659**	**509**	**562**	**553**
3	Self employed in non-agriculture	81	142	163	155
4	Casual labour	139	213	126	135
5	Wage/salary	63	85	90	96
6	Others	58	51	59	61
	Total non-agriculture	**341**	**491**	**438**	**447**
	Total	**1,000**	**1,000**	**1,000**	**1,000**

Source: NSSO, 2014a (68th Round).

belonging to tribal groups was engaged in agriculture while the proportion for all social groups was 55% only. The proportion of working population engaged in non-agricultural activities was proportionately higher for non-tribal households compared to tribal social groups (45% and 34% respectively) (Table 2.4).

Given the heavy dependence on agriculture in tribal regions, it follows that the high poverty and backwardness of tribal regions have a lot to do with the status of agriculture here. In this chapter, we try to bring out the unique features of agriculture and livelihoods in tribal regions of India today. This understanding of the socio-economic realities of tribal regions is important for those concerned with formulating strategies to bring about a change in the balance of power in these areas.

In the earlier section of this chapter, we had classified districts into four groups on the basis of the share of tribal population in total population. The key point is that tribal population is concentrated in a few states and districts, and there are many districts in India with zero tribal population. Hence, we can compare the agricultural characteristics of districts with varying tribal concentration to get an idea of how tribal agriculture fares.

Land Use

Table 2.5 shows district-wise land use pattern. The share of forests in Total Geographical Area (TGA) is high in MT and ST districts (where tribals form 25% or more of the population). The share of forests in TGA in these districts is 43% and 36% respectively, while the share of net sown area (NSA) is proportionately lower in these districts as compared to LT and NT districts (26% and 35% respectively). More than half of the TGA is under cultivation in NT districts and cropping intensity is also the highest here (Table 2.5).

Table 2.5 Percentage Distribution of Land Use Categories Across Districts, 2010–11

Category	*Geographical area*	*Forest area*	*Wastelands*	*Fallows*	*Net sown area*	*Gross cropped area*	*Cropping intensity (GCA/ NSA)*
1 Majority tribal (MT)	**100.0**	42.8	24.2	7.2	25.8	33.3%	129
2 Significant tribal (ST)	**100.0**	35.8	21.6	7.6	35.0	47.0%	134
3 Low tribal (LT)	**100.0**	25.2	20.9	7.8	46.1	63.9%	139
4 Non-tribal (NT)	**100.0**	12.6	24.2	8.7	54.5	77.5%	142
All districts	**100.0**	**20.2**	**23.2**	**8.2**	**47.8**	**67.5%**	**140**

Source: Indian Agricultural Statistics, 2010–11.

Cultivated Area and Irrigation

Information on cropped area and irrigated area is available from Indian Agricultural Statistics and Agricultural Census. Data indicate that MT and ST districts together account for only a small proportion of the cropped area of the country (both NSA and GCA). While the share of MT and ST districts together in TGA is about 20%, their share in cropped area (both NSA and GCA) is only about 12%. About 70% of the GCA of the country is in NT districts and they account for about 58% of the area under food crops as well. There are similar disparities regarding access to irrigation as well. While the ratio of Gross Irrigated Area (GIA) to GCA is 16 and 25 respectively in MT and ST districts, more than half of the cropped area in NT districts have access to irrigation (Table 2.6).

Detailed data on irrigation status by size of landholdings is available from Agricultural Census 2010–11. It shows that for all size classes of landholdings, the percentage of net area irrigated for tribals is 50% less than that of the percentage for all social groups. The average ratio of NIA to NSA for the country as a whole is 45.7% for all groups whereas for tribals it is 23.5%. This clearly indicates the irrigation deprivation of tribal communities (Table 2.7).

Unequal access of tribal regions to irrigation is also shown by the results of the 5th Minor Irrigation Census (2013–14) (MoWR, 2016). Of the total 20.72 million groundwater structures (wells+tubewells), tribals as a social group owned only 1.2 million structures, or about 5.9% of the total. The inequality in ownership is most blatant in the case of tubewells, where tribals owned only 4.2% of the total tubewells, considerably lower than their share in total population or the number of landholdings (MoHFW, 2017).

Table 2.6 Share of Districts in Gross Cropped and Irrigated Area, 2010–11

Category	*Area (million hectares)*						
	TGA	*NSA*	*GCA*	*GIA*	*Area under food crops*		
MT	31.09	7.75	10.00	1.61	8.23		
ST	30.34	10.36	13.92	3.78	10.31		
LT	52.15	45.01	62.36	23.26	43.57		
NT	181.69	78.18	111.93	58.88	84.13		
TOTAL	**295.27**	**141.29**	**198.21**	**87.53**	**146.24**		
Category	*Share in total area %*					*GIA/ GCA %*	*FC/GCA %*
	TGA	*NSA*	*GCA*	*GIA*	*Area under food crops*		
MT	10.5	5.5	5.0	1.8	5.6	16	82
ST	10.3	7.3	7.0	4.3	7.1	27	75
LT	17.7	17.0	16.8	26.6	29.8	37	70
NT	61.5	70.1	71.1	67.3	57.5	52	75
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**44**	**74**

Source: Indian Agricultural Statistics, 2010–11.

Note: TGA – Total geographical area; NSA – Net sown area; GCA – Gross cropped area; GIA – Gross irrigated area; FC – Food crops

Table 2.7 Net Irrigated Area (000 ha.) by Size of Landholdings, 2010–11

	Landholding size	*Net irrigated area*		*Net sown area*		*NIA/NSA (%)*	
		All groups	*STs*	*All groups*	*STs*	*All groups*	*STs*
1	Marginal	16,835	696	32,219	2,746	52.3	25.3
2	Small	14,263	876	31,976	3,626	44.6	24.2
3	Semi-medium	14,995	962	33,778	4,071	44.4	23.6
4	Medium	13,266	741	29,442	3,262	45.1	22.7
5	Large	5,209	196	13,864	1,065	37.6	18.4
6	**All classes**	**64,568**	**3,471**	**141,279**	**14,770**	**45.7**	**23.5**

Source: MoA, 2015.

Table 2.8 Number of Agricultural Households, Groundwater Structures and Percentage of Households Owning Groundwater Structures by Social Group

Social group	*No. of agricultural households (million)*	*Number of tubewells (million)*	*Agricultural households with tubewells (%)*
ST	12.12	0.49	4.1
SC	14.67	1.19	8.1
OBC	40.98	4.73	11.5
Others	22.44	4.30	19.2
All social groups	**90.20**	**11.74**	**13.0**

Source: NSSO SAS 70th Round, 2013; Minor Irrigation Census, 2013–14.

The same can be seen through a comparison of the number of agricultural households and the ownership distribution of tubewells (the major source of irrigation water in India) by each social group. We combine the data from two different sources, NSSO 70th Round Situation Assessment Survey (2013) and the Minor Irrigation Census, 2013–14. As seen in the table, while 28% of agricultural households in the Others social group owned a tubewell, only 10% of the tribal agricultural households had a tubewell of their own (Table 2.8).

Cropping Pattern

There are some variations in cropping pattern between tribal and non-tribal districts. About 70–75% of the cropped area in tribal districts is under food grain production while this percentage is about 64% in non-tribal districts. Therefore, it appears that tribal districts are less diversified in their cropping system compared to the non-tribal districts. Many of the LT and NT districts have diversified their cropping and moved away from food crops towards non-food crops like cotton, sugarcane and oilseeds. Another interesting pattern noted from various field studies is that in many non-tribal districts of northwest and south India, the food crops themselves are grown as commercial crops intended for market sale. One can, therefore, say that the organized agricultural markets are more functional in non-tribal areas than in tribal areas (Table 2.9).

More detailed and crop-wise information on the area under crops of tribal households as compared with that of the average area for all social groups is available from the Agricultural Census. The comparison is shown in Table 2.10.

Table 2.9 Cropping Pattern in Tribal and Non-Tribal Districts, 2010–11

Category	*Share in gross cropped area (%)*					
	Cereals and millets	*Pulses*	*Total food grains*	*Total food crops*	*Total non-food crops*	*All crops*
Majority tribal (MT)	64	11	75	83	17	100
Significant tribal (ST)	56	12	68	73	27	100
Low tribal (LT)	45	15	60	68	32	100
Non-tribal (NT)	53	11	64	73	27	100
Total	**52**	**13**	**64**	**72**	**28**	**100**

Source: Indian Agricultural Statistics, 2010–11.

Table 2.10 Area Under Crops and Crop Groups, STs vs National Average, 2010–11

	Crops/crop group	*All social groups*		*STs*	
		Area (000 ha.)	*%*	*Area (000 ha.)*	*%*
1	Paddy	49,666	25.6	6,785	37.4
2	Wheat	30,900	15.9	1,437	7.9
3	Jowar	7,703	4.0	568	3.1
	All cereals	110,511	57.0	11,841	65.2
4	Gram	7,834	4.0	559	3.1
5	Tur	4,231	2.2%	458	2.5%
	All pulses	22,260	11.5%	1,864	10.3%
	Total food grains	**132,771**	**68.5%**	**13,706**	**75.5%**
6	Sugar	5,158	2.7%	140	0.8%
7	Spices	2,719	1.4%	324	1.8%
8	Fruits	3,129	1.6%	259	1.4%
9	Vegetables	4,018	2.1%	364	2.0%
	Total food crops	**147,894**	**76.3%**	**14,820**	**81.6%**
10	Oilseeds	24,863	12.8%	2,124	11.7%
11	Fibres	11,993	6.2%	841	4.6%
	Total non-food crops	**45,865**	**23.7%**	**3,334**	**18.4%**
	Gross cropped area	**193,759**	**100.0%**	**18,154**	**100.0%**
	Net sown area	**141,279**	**72.9%**	**14,770**	**81.4%**
	Cropping intensity	137%		123%	

Source: Agricultural Census, 2010–11.

The table shows that nearly 76% of the Gross Cropped Area (GCA) of ST households were under food grains and 82% under food crops compared to the national average of 69% and 76% respectively. The difference is primarily due to the higher area under rainfed paddy in tribal areas. The cropping intensity in tribal areas (123%) is lower than that for all social groups taken together (137%).

Agricultural Productivity

Given the variations in crops area, access to irrigation and type of crops grown, it would follow that there would be substantial differences in land and labour productivity between the four categories of districts. We use the average land productivity (₹/ha. of NSA) as worked out by Chand et al. (2012) for this calculation. The reference year for the data on agricultural productivity is 2003–04 and 2004–05 (two-year averages) at constant 2004–05 prices. For calculating the value of production (VoP) of crops at the district level, we have multiplied base year land productivity with the NSA in each district as in 2010–11. In other words, we have extended the base year productivity levels to the NSA of 2010–11. This calculation shows that NT districts account for about 63% of the value of production of agriculture in 2010–11, compared to just 8% in MT and ST districts together. In other words, with only 12 times as much the cropped area of MT districts, NT districts generate 18 times as much value in terms of their agricultural production. This is reflected in the difference in the average land productivity (rupees per ha. of NSA) in the two groups of districts. We find that the average land productivity of MT districts (₹16,676) and ST districts (₹20,415) is much lower than the national average (₹26,939). In fact, the average land productivity in NT districts is almost double that of MT and 1.5 times that of ST districts (Table 2.11). Similar position can be seen in terms of per worker productivity as well.

Table 2.11 Value of Production, Average Productivity and Major Crops, 2004–05

Category	*Value of production (₹ crore)*	*Share in VoP (%)*	*Average productivity (₹/ha.)*	*Average productivity (₹/worker)*
MT	12,916	3.4	16,676	10,055
ST	21,152	5.6	20,415	13,103
LT	105,877	27.8	23,523	16,583
NT	240,690	63.2	30,787	18,446
Total	**380,635**	**100**	**26,939**	**17,045**
Ratio NT:MT	**18.7**		**1.85**	**1.83**

Source: Calculated from Chand et al., 2012; Indian Agricultural Statistics, 2010–11.

Another way of comparing average productivity levels would be by dividing the country into different agrarian regions and calculating land productivity. We have the long period data set compiled by G.S. Bhalla and Gurmail Singh for various time points (Bhalla and Singh, 2012). In this data set, the original district boundaries as in the early 1960s are kept constant and the current districts are reconfigured to these original districts. The data set estimates triennium averages of crop area, irrigated area, value of production, agricultural workers and inputs (fertilizers, pumpsets and tractors) over the period spanning from 1962–65 to 2005–08. The value output calculations are made considering the area and production of 35 major crops at constant 1990–93 prices. This methodology has the advantage of allowing overtime comparisons in agricultural growth across districts and states in India. However, it has several limitations. First, it considers only 35 major field crops (covering roughly 90–95% of the gross cropped area) and hence is likely to be biased against districts which have sizeable area under tree crops and plantations. Second, this data set excludes some districts, most notable being the northeast states other than Assam. Third, it does not take into account the value of livestock production, which is increasingly becoming an important source of value in rural India. Fourth, the use of constant price ignores the effect of relative price movements, which again could be a major contributor to growth in many parts of India (the chapter will discuss more on this later). Even with all these limitations, this data set remains an important source for overtime comparison of agricultural growth in India (Vijayshankar, 2017).

We utilize this data set to identify agrarian regions, broadly defined as groups of districts sharing common topographic, agro-climatic, social and economic characteristics. For the purpose of identifying regions, we have made use of the classification of states into NSS regions (NSSO, 2014a), without strictly adhering to the NSS grouping of districts. This breaking up the states into 54 relatively homogenous groups of districts helps arrive at some aggregate features of the development process at a considerably higher level than that of the district. Of the 54 agrarian regions of the country, 19 have some concentration of tribal population (TP>10%). We designate these regions as "tribal agrarian regions". We now classify these tribal agrarian regions in the 4-way table, based on their average level of agricultural productivity (₹/ha. at constant prices) during 2006–08 and the rate of growth of value of production between 1980 and 2008. We find that 16 out of 19 tribal agrarian regions were in the low productivity category in 2006–08. About half of them (8) had experienced relatively high rate of growth of agricultural output between 1980 and 2008. The other half did not see any such growth. Even these relatively fast-growing regions have remained in the low productivity category in 2006–08 on account of their low starting point (Table 2.12). We see that most of the tribal-dominated regions of Rajasthan, MP, Maharashtra and Bihar/Jharkhand are in the low productivity category.

Table 2.12 Cross-Classification of 19 Tribal Agrarian Regions and Productivity Growth, 2006–08

		Rate of growth of value of production 1980–2008	
		High	*Low*
Level of agricultural productivity 2006–08	*High*	193 – West WB 191 – North WB	181 – East Assam
	Low	82 – NE Rajasthan 83 – South Rajasthan 233 – MP Malwa 234 – MP Mahakoshal 235 – MP Narmada 237 – MP Chhattisgarh 274 – Mah-Vidarbha 292 – North Karnataka	11 – J&K Hills 182 – West Assam 103 – South Bihar 212 – West Odisha 213 – North Odisha 241 – South Gujarat 231 – MP Vindhyachal 275 – Mah-Khandesh

Source: Vijayshankar, 2017.

Livestock

We now turn to the size and composition of the livestock economy of tribal and non-tribal areas. We utilize the data from the 19th Livestock Census, 2012. The examination of the distribution of bovine population shows that nearly 67% of them (80% of buffaloes and 60% of cattle) are in NT districts. MT and ST account together account for only 19% of total bovines (23% of cattle and 12% of buffaloes) (Table 2.13). Analysis of the female-to-male ratio shows that there is a predominance of milch animals (female cows and buffaloes) in NT districts. While there were only 964 female bovines per 1,000 males in MT districts and 1,363 in ST districts, there were 3,545 female animals per 1,000 males in NT districts. Draught animals (male cattle) form a significant proportion of total livestock holdings in MT and ST districts while their share is low in NT districts (Table 2.14).

The higher presence of milk-producing animals, especially female buffaloes, in NT areas shows that dairying is a well-developed enterprise in the non-tribal areas. Much of the milk production in the country is concentrated in NT districts. The higher share of draught animals in MT and ST districts shows that these are probably areas where farm mechanization is low.

The distribution of goats and sheep is also similarly skewed in favour of NT districts. About 66–75% of goats and sheep are found here. However, this does not mean that goats are unimportant in tribal areas. Goats are the principal drought-mitigation mechanism for tribal households, who constantly face the risk of crop failure due to erratic climate. But goat rearing and poultry represent low-input and low-investment production systems. Reductions in grazing land, encroachments and closure of forest land and increasing industrialization have adversely affected small ruminant populations. It is well known that animal healthcare, input supply and output

Table 2.13 Distribution of Livestock Population Across District Categories, 2013

	Bovines	*Cattle*	*Buffaloes*	*Sheep*	*Goats*
	Number (Million)				
MT	19.85	16.36	3.14	1.31	11.16
ST	35.75	26.36	9.38	3.67	17.05
LT	42.09	33.65	8.87	11.90	17.23
NT	198.73	113.09	85.63	48.05	88.79
Total	**296.42**	**189.46**	**107.02**	**64.94**	**134.24**
	Share in total (%)				
	Bovines	*Cattle*	*Buffaloes*	*Sheep*	*Goats*
MT	6.7	8.6	2.9	2.0	8.3
ST	12.1	13.9	8.8	5.7	12.7
LT	14.2	17.8	8.3	18.3	12.8
NT	67.0	59.7	80.0	74.0	66.1
Total	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

Source: 19th Livestock Census, 2013.

Table 2.14 Animal Sex Ratio (Females per 1,000 Male Animals) in Different District Categories

Animal sex ratio (F/1000M) in different district categories			
	Cattle	*Buffaloes*	*Bovine*
MT	820	2,340	964
ST	1,011	4,479	1,363
LT	1,456	4,699	1,826
NT	2,520	6,330	3,545
Total	**1,810**	**5,751**	**2,565**

Source: Calculated from 19th Livestock Census, 2013.

markets in India's livestock economy are heavily oriented towards dairying and very little support is available for goat rearing or poultry. Consequently, mortality rates as high as 30–40% in goats and goat kids are quite common (FES, 2011). Vaccines for major diseases (such as PPR) are either not available in adequate numbers, or the cold chain supply systems are not adequately maintained, affecting the efficacy of the product. With limited investments in vaccination, disease management and provision of fodder and water, these can prove to be highly climate resilient and profitable production systems. Grassroots work has also shown how support for goat rearing and backyard poultry can be organized through developing a local cadre of para-veterinary professionals (local youth trained in animal

healthcare and treatment).[3] Such initiatives need to get into the way animal healthcare is organized in tribal areas in the public system, which could make a significant difference to the livelihoods of tribals.[4]

Access to Rural Credit

Official All India Debt and Investment Survey (AIDIS) data on access of STs to institutional sources of credit show that 57% of the loans of tribal households are sourced from institutional sources as against 65% for non-tribal households. The dependence of tribals on non-institutional sources is shown as marginally higher than that of non-tribals. The size of loans taken by tribal households is considerably smaller than that of non-tribal households. However, this data has several weaknesses. It is talking about agricultural households only and hence presents a partial picture as it excludes many other types of farmers such as tenant farmers and women farmers. Moreover, the data covers only the cash part of the outstanding loans of households. A crucial insight into the way the output, credit and input markets are structured in tribal areas is that a major part of the loans taken (including loans outstanding at any point of time) is in the form of non-cash debt (see the section on interlinked markets later). It is also well known that the dependence on non-institutional sources of credit is inversely proportional to the size of landholdings – the smaller the landholding the greater is the reliance on informal sources such as moneylenders. Given these complex issues, we need to rely more on empirical studies and grassroots experiences rather than on secondary data while analysing issues such as land lease and tenancy, credit markets, access to inputs and so on. This is attempted in the next section.

Summing Up

The evidence cited in the earlier paragraphs, inadequate though they are being collected and put together from different sources, shows that the regions where tribals are found to be in some concentration are highly dependent on agriculture and agricultural productivity has been depressed in these regions. The most significant difference between tribal and non-tribal areas in terms of their agriculture seems to be in the access to water for irrigation. These differences can be traced back in history. Through historical processes, stretching over several centuries, the tribal communities in India are found in larger concentrations in "ecological refuges" like hilly, mountainous and forest regions of the country, where agro-ecological conditions are harsh. For example in about 257 districts with tribal concentration in 2011, 237 are either forested or hilly or dry and these together are home to 80% of the total tribal population of the country (Bakshi et al., 2015). Water availability and water control were major issues here. By contrast, in the deltas, floodplains and coastal regions, water was plentiful either

through snow-melt rivers or from groundwater stored in alluvial aquifers. Naturally, the core agricultural zones were formed in the deltas, floodplains and coastal regions, which were more suited to sedentary field agriculture (Roy, 2014). These areas also received more public investment in irrigation infrastructure and responded positively to the expansion of trade and agrarian commercialization between 1880 and 1920. Accounting for about 30% of the total geographical area of the country, these regions not only had better access to irrigation but also more agricultural land per capita such that land here was more productive (as indicated by the land revenue per square mile of agricultural land) (Roy, 2014). The interior upland and arid regions, however, remained relatively backward. They had lower average rainfall, a smaller proportion of cultivable land, lower irrigation ratio and smaller revenue per square mile of agricultural land. These differences in regions partly explain the differences in the productive capacity of agriculture between them. However, this may not be the entire story.

Since irrigation is considered as the "leading input" facilitating the adoption of the synthetic chemical-intensive agricultural package including high-yielding seeds, chemical fertilizers and pesticides, it is tempting to conclude that the way to raise agricultural productivity in tribal regions is through spreading irrigation and the high-input agricultural package. Recently, Shah et al. (2016) have argued that tribal-dominated districts form a significant section among the 114 most "irrigation deprived" districts of India. Irrigation-deprived districts are defined as those with less than 30% landholdings receiving irrigation. Of these districts, 31% are those in MT and ST categories. These districts are mostly in the five big states of the Central Indian Tribal Belt (CITB), that is Gujarat, Madhya Pradesh, Chhattisgarh, Odisha and Jharkhand. The proposed solution, therefore, is to expand irrigation coverage, encourage adoption of this chemical-intensive agriculture package and thereby close the gap in productivity between these districts and others. The same can also be formulated in terms individual crops and bridging the "yield gap" in them through agricultural intensification. We would argue that this way of formulating the problem is doubly faulty. It ignores fundamental constraints to agricultural growth in tribal regions that go well beyond technological solutions to management of land and water. Moreover, the proposed solution also assumes that the only way to raise productivity in tribal regions is through intensification of agriculture and adoption of the high-input agricultural package. In the next sections, we look at the principal constraints and processes holding down agricultural growth in tribal areas and the ways to raise productivity here.

Constraints of Tribal Agriculture

In this section, we identify some dynamic processes in tribal areas which reproduce the relationships of domination and control there. In the case of tribal agriculture, these processes are related to the manner in which

the surplus from agriculture is created, extracted and expropriated for accumulation of capital elsewhere so that the production base of tribal economy remains low. Both market and non-market mechanisms used for such extraction of surplus can be identified, which end up in the key productive resource of the tribals, that is land, being taken away from their hands. Through these processes, the inequality between tribal and non-tribal regions gets widened. These processes constantly reconfigure not only the land and livelihoods of tribals but also the tribal identities. They create tremendous unrest in tribal areas leading to constant conflicts and violence.

Land Lease Arrangements

Land markets have not been very active in India historically. By contrast, land lease markets have been highly active. Many states have passed land reform laws abolishing tenancy. States such as Kerala, Jammu and Kashmir and Manipur have legally prohibited leasing out agricultural land without any exception. Many states like Bihar, Karnataka, Madhya Pradesh, Chhattisgarh and Uttar Pradesh allow leasing out only by certain categories of land owners, such as those suffering from physical or mental disability, widows, unmarried, separated or divorced women, members of armed forces (NITI Ayog, 2016). Still, tenancy has not disappeared. The official surveys by NSSO and others tend to under-report the extent of tenancy. But other studies show that at least 20–25% of the cropped area is under some type of tenancy arrangement in many parts of rural India (Vijay and Sreenivasulu, 2013; Ramachandran et al., 2010). Swain (1998) reports that 17% of households leased-in land Odisha in 1981–82. More than 80% of the leased-in area is in the class size of less than ten acres, and the percentage of leased-in area to operated area decreases with the increase in size of operational holding (Swain, 1998). Sharecropping is the predominant, though declining, form of tenurial arrangement. In Odisha, about 42% of the leased-in area is under sharecropping as against about 14% and 8% respectively under fixed-produce and fixed-rent contracts (Swain, 1998). Another study shows that fixed tenancy with payment in varieties of cash and kind is common in the irrigated villages in Sambalpur district, which has significant tribal population (Sarap, 1998). Land leasing on fixed tenancy is of two types: in kind (*kara)*, when the agreed amount of paddy is delivered after the harvest; and in cash (*chhidol*), where the rent is paid upfront in cash before the lessee is permitted to use the land. There is a wide range in the rent payable, which is indicative of the heterogeneous terms and conditions among such contracts in tribal tracts (Sarap, 1998). Mearns and Sinha (1999) reports that more than 40% of the operational area is under share tenancy in a dry village in Dhenkanal district as against 12–19% in irrigated villages in Cuttack district. This pattern seems to confirm the persistence of the potential for risk-sharing under sharecropping contracts.

While these systems are existent in non-tribal areas as well, several exploitative land lease arrangements are specifically reported from tribal areas. In her study of land leases in Santhal Parganas, Jharkhand, Rao (2005) identifies debt mortgage (locally called *bhorna*) as the most exploitative system of land lease. In this system, grain or money is borrowed during times of need and a proportionate amount of land given for the crop season. Failure to repay the loan eventually results in the land being taken away from the hands of the tribals. Similarly, in the context of the tribal areas of Andhra Pradesh, the famous Samatha judgement (1997) identified four types of land lease arrangements as prominent in tribal areas:

Short-term loan at exorbitant rates of interest (*kandagutha*), repayment of which is made in kind; medium-term loan on security of immovable property repaid with compound interest paid with yearly or half yearly frequency; cash and kind loans (*namu*) and lending commodities like food grains mostly for sustenance during the lean months on the condition that the same will be repaid in full along with a flat interest at the time of harvest; if in default, payment will be with compound interest. Failure to repay would lead to land dispossession; and land leases against fixed number of years (*tirumanam)* during which period the tribals have to cultivate their land, raise the crop and deliver the entire produce to the moneylender; by this usufructuary mortgage, the moneylender remains in control of land and enjoys produce from land for fixed number of years till the principal sum is repaid.

The most exploitative among all these arrangements is the *tirumanam* or usufructory mortgage. Several equivalents of this exist in many parts of tribal India. For example in the tribal areas of Madhya Pradesh, the system of *byaj petta* or *galat byaj* has been observed whereby the tribal farmers are compelled to lease out land in distress in lieu of an advance provided by the moneylender. This advance enables the lessee to cultivate the land for an indefinite period till the advance amount is returned. No deduction is made on account of the annual rent, which is presumed to be equivalent to the annual interest on the principal. This extraordinary system entails an implicit rate of interest which can amount to as much as 10% per month, depending on the productivity of the land being leased out (Shah et al., 1998). All these types of tenancy arrangements take away a major part of the surplus produced from the tribal farmer and pass them onto the hands of non-tribals. In most cases, this would eventually end up in the dispossession of tribal land.

Usury

Clearly, usury plays an important role in the process of resource emasculation of tribal societies. It is well known that even nearly four decades after the nationalization of commercial banks in 1969, 40% of the rural households are forced to borrow from informal sources like moneylenders

who charge usurious rates of interest (NSSO, 2016). The dependence on these informal sources is inversely proportional to the size of landholdings of these households. Tribals take loans at high rates of interest from moneylenders/traders for consumption and other purposes. In the event of default of loan repayment, it is known that informal lenders takeover the forest produce and livestock of the tribals. This process has been reported in numerous village studies for over a long period (Mohanty, 2005; Sarap, 1991; Sarap, 2007). Almost all states in India have passed laws regulating moneylending and usurious rates of interest being charged by them (RBI, 2007). Many of these laws have been specifically focused on tribal areas as well. Andhra Pradesh (Andhra Region Scheduled Areas) Money Lenders Regulation, 1960 and The Orissa (Scheduled Areas) Moneylenders' Regulation, 1967 are two such examples. Despite such legislations, informal forms of lending, charging interest rates varying between 5% and 10% per month (60–120% per year) are quite common in rural areas (Banerjee, 2001; Swaminathan, 1991; Irfan et al., 1999).

In addition to extracting surplus through high rates of interest, usury is also the process by which land alienation has been taking place in tribal areas. In his classic account of how informal markets work in rural areas, Hardiman (1987) showed that credit relations with trader/moneylenders have long been a feature of tribal social life in western India. Dearth or scarcity was used to advantage by the "sahukars" or moneylenders to extract surplus and dispossess the peasants of their land. Similar observation has been made by others like Upadhyay (1980) in the case of Thane district. In his study of land alienation in tribal Odisha, Sarap (2010) focuses on the alienation of *patta* land through mortgages and sales. Viegas's study in four districts of Orissa showed that the STs lost almost 56% of their private land, and debt and mortgages accounted for about 40% of such losses while 16% of the land was lost through sale (Viegas, 1991). A study conducted in Srikakulam district found that in spite of the laws prohibiting the transfer of lands to non-tribals in scheduled areas, land transfers continued and this process has been intensifying in recent decades (Reddy, 1988). In tribal tracts of East and West Godavari districts, many non-tribal farmers purchased land in the names of their tribal servants or attached labourers. Another means employed by non-tribal communities to occupy tribal land was to procure false ST certificates. Armed with this status, the non-tribal migrants purchased tribal lands at a large scale (Rao et al., 2006).

As Bhaduri (2006) has shown, the administrative costs of lending are bound to be high in rural areas, since the loan size per borrower is typically low and the borrowers are spread over a large geographical area. Moneylenders can cut costs partly because they are better informed about their clients. But since the profitability of lending depends on the weak bargaining power of the borrower, the lender has a vested interest in keeping the borrowers vulnerable and weak. The mechanism for this is to undervalue the collateral (such as land or agricultural produce) or provide a market for

non-marketed collateral (such as future labour service or a future harvest). The lender is in a powerful position to undervalue these not easily marketable collaterals (Bhaduri, 2006). This transfers the risk of default from the lender to the borrower. Monitoring is no longer an issue as the borrower is far more worried about losing the collateral than the lenders. And in this highly exploitative system, there is a great incentive for charging usurious rates of interest because default will only mean that the lender grabs the asset offered as collateral (Basu, 1987).

Interlinked Markets and Transactions

Such findings show how transactions in different markets in rural areas are closely linked to each other. Interlinked transactions refer to the phenomenon whereby monopoly in one market generates forces which lead to the interlocking of this market with another (Bardhan, P. 1980; Basu, 1987). In the literature, the economic rationale behind interlinkage is understood in terms of the risk involved in lending money to unknown persons. This would mean that a moneylender would give credit normally to only those persons with whom he is engaged in other types of transactions (Basu, 1987; Platteau, 1983). Interlinking markets could also be a means of reducing uncertainties and minimizing transaction costs. When lenders cannot observe or monitor the behaviour of borrowers, which invites moral hazard and adverse selection, the problem may be overcome by making contracts that interlink markets (Braverman and Stiglitz, 1982). Such explanations do not address the question of power relations endemic to interlinked transactions.[5] As seen in the previous section, interlinking of credit and land and land lease markets often leads to the borrower losing control over land. Similar linked transactions often extend to output and input markets as well. Hence, it is typically the case in tribal areas that the provider of inputs and credit is also the person to whom the tribal peasants must sell their final produce, at much lower than market rates. The driving force of the whole system is the rate of interest, itself a reflection of the unequal balance of power in the relationship between debtor and creditor. The inputs are offered on credit at exorbitant rates of interest. In our studies on the tribal regions of central India, we have found that tribal farmers take many inputs like seeds, fertilizers and pesticides on credit from the traders. The rate of interest on these advances usually varies between 25% and 50% per annum. These markets often function in a highly exploitative manner and become a vehicle for the exercise of power relations for surplus extraction (Bhaduri, 1983). Cash in hand is never enough to pay for the inputs taken at the beginning of the agricultural season. Smallholder farmers who are forced to borrow from the moneylenders to meet their working capital needs are required to sell the produce immediately after harvest at low prices ("distress sales"). Mostly, such sales are made to the moneylenders themselves when they also occupy the role of the village trader. In our field

surveys in central India, we have found that 60% of the tribal farmers are not able to hold on to their marketable surplus of soybean or maize for a period of more than one month and 80% farmers sell their produce within two months of the harvest (SPS-UNDP, 2014). This need to sell arises from the fact that unless old loans are repaid and settled, fresh loans for the new agricultural season will not be forthcoming even from the informal sources.

Bondage and Migration

Field research has revealed that it is not only commercial farmers who demand credit for production, but poor cultivators and labourers who need it for consumption and for medical and educational expenses (Sarap, 1998). Interlinkage of credit and labour markets enables the big landholders to extract surplus from the labourers by providing them with consumption credit that ties them to the landlord. Since the landlord has limited control over the effort or the effective labour put in by a tenant, interlinkage is used by the landlord as an instrument of indirect control of labour effort (Basu, 1984). In extreme cases, this results in bondage whereby the labourer commits himself or herself to work for the lender till such a time as the loan is fully repaid. The servicing of high-interest debt and the social relations involved are increasingly tied to labour recruitment and urban casual labour markets. Poor households are forced to migrate immediately after the harvest in order to service high-interest loans (as high as 12.5% per month or 150% per annum) taken during the monsoon season for meeting their basic consumption needs and medical emergencies (Mosse et al. 2002). At the end of the contract period, they are given an advance (at high, not always clearly specified, and certainly never properly accounted for, rates of interest) which ensures that they return the next year (Shah et al., 1998). Cash advances, in such cases, may have usurious interest rates but can nevertheless serve as means to procure the produce of farmers at low prices (Olsen, 1996). This advanced sale of labour weakens migrants' bargaining power, so it is unsurprising to find that poorer migrants obliged to accept advances and being tied to brokers and contractors end up in the least well-paid and harshest working environments (for example piece rate slab work, quarry work). It is also the very poor who get recruited for labour-intensive agricultural work (for example soybean extraction) attracted by cash advances, the provision of food as part of the wages and low transport costs.

Examples of this kind are visible in the Kalahandi–Bolangir–Koraput (KBK) region of western Odisha (SPS, 2016). These are among the poorest districts in the whole country. The fortunes of these districts rise and fall with the periodic and contrasting extreme weather conditions. Recurring droughts have diminished the opportunity of the labour employment in the agriculture sector and forced people to migrate in large number. In the absence of alternative employment opportunities, most families in western Odisha survive on remittances by family members employed in

brick-kilns, on roads, or other forms of contract labour. Search for wage employment forces them to migrate to distant places like the brick kilns of Andhra Pradesh, carpet industry in Vishakhapatnam, Andhra Pradesh, construction sites in Maharashtra and for rickshaw pulling in Chhattisgarh. Migration takes place under the *pathariya* system, wherein a work unit comprising a husband, wife and one or two children migrate together. A labour-contractor mafia, with political patronage cutting across party lines, organizes this modern-day version of slave trade and human trafficking from western Odisha to the brick kilns of Andhra Pradesh and other similar sites. With no savings to bank upon, they depend on loans from the local moneylenders who charge exorbitant rates of interest. To pay back the loan of ₹8,000–10,000, they are forced to migrate out of the villages.[6]

Outdated Land Records

In the earlier sections, we saw that land was at the centre of many of the conflicts in tribal areas. Access of tribal communities to land is affected by actions of the state as well as through the entry of non-tribal populations into tribal areas. The issue came to sharp focus with Samatha, a social action group, filing a case in the Supreme Court and winning it. Since the early 1990s, Samatha had been working in Andhra Pradesh for the rights of tribal communities and for the protection of the environment. In 1993, it got involved in a local dispute over leasing of tribal lands to the private mining industries. Samatha filed a Special Leave Petition in the Supreme Court of India and after four years of legal struggle got a historic judgement in its favour in 1997 by a three-judge Supreme Court bench. This landmark judgement permitted mining activity to go on as long as it was undertaken by the government but rendered null and void all transfer of tribal land to mining companies. Minerals were to be extracted by tribals themselves either individually or through cooperative societies. Transfer of land in scheduled areas by way of lease to non-tribals and corporate bodies was prohibited. Despite such legal support, as we have seen, land alienation continues in tribal areas depriving tribals the ownership of the land they cultivate.

Another major issue related to tribals' access to land in scheduled areas is the role of the forest department and forest laws. The history of forest policy in India shows that the ruling framework has been to protect and conserve forests by keeping tribals out of them. The legacy continues to this day. In a judgement pronounced on 13th February 2019, Supreme Court ordered eviction of 1.1 million forest-dwelling families from forest area across 16 states. This order came after the Supreme Court heard petitions challenging the validity of the Forest Rights Act 2006, with the petitioners demanding that the forest dwellers whose claims on traditional forest land have not been proven should be evicted. This order has been stayed subsequently. However, the issue remains that in the imagination of the forest department

as well as that of some environmentalist groups, forest protection necessarily involves limiting the rights of access of tribal communities to forest. Given the strong links between the forest and other forms of livelihoods in tribal areas (for example availability of grazing space for the livestock), limitations imposed on rights over common land and forests lead to deprivation and conflicts.

An important aspect of access to land in tribal regions is related to land titles. Land records in India are not updated in many parts of India, especially in tribal regions. Land title in one's own name is the precondition for the access to institutional credit, membership in cooperative societies and many government programmes. Modernization of land records and their full digitization, including GIS maps, has been identified as a priority by the 12th Five Year Plan (GoI, 2012). However, land records still remain outdated. Given the proliferation of small and marginal farmers with tiny landholdings, there need to be several support systems to ensure the viability of these landholdings. However, since the land records are not updated, the smallholder farmers, who are de facto owners of the land, are not able to avail of these systems. Incorrect land records also affect the availability of other inputs for farming. For example if the actual area being cultivated is more than the area marked in the land records, the area insured is less than the cultivated area. This could lead to a reduction in the insurance claims of farmers. Moreover, this is also a source of corruption by local bureaucracy, who charge exorbitant amounts for a simple transfer of title from a deceased person to his/her heirs (called *namantaran*). Hence, any effort at updating land records is met with stiff opposition from the local vested interests and who are hand in glove with the lower-level revenue bureaucracy.[7]

Conclusion

Our argument in the previous section is that a fundamental breakthrough in tribal agriculture cannot be brought about through technology-centric solutions (such as introduction of hybrid seeds or "improved" methods of farming), without addressing the institutional constraints in tribal areas. Tribal societies today lack a strong political voice. What is required is the build-up of a strong grassroots pressure in tribal regions through formation and strengthening of vibrant people's organizations and collectives of tribal communities, which take up the challenge of leading the processes of development. These collectives will be able to mobilize substantial public investments to tribal regions to create basic infrastructure for development of agriculture. Following the received wisdom of development economics, we argue that a "big-push" public investment is required to take the tribal regions out of the low-level equilibrium trap in which they are caught in (Rosenstein-Rodan, 1943; Hirschman, 1958). And given the ecological constraint, this big-push investment effort needs to be substantial, multipronged and sustained over a long period. Green Revolution is an example

whereby substantial public investments made a fundamental change in India's agrarian landscape. However, the assessment of this experience garnered over four decades clearly shows the need to step out of this paradigm and move towards a framework based on the principles of ecological sustainability. It is this path of sustainable development that we would advocate for the tribal regions of India. The framework for a new deal for India's tribal regions is elaborated here.[8]

Public Investment in Water: Investments in creation of robust water infrastructure opens up a range of livelihood possibilities for tribal communities. Public investment programmes like Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and Integrated Watershed Management Programme (IWMP) can be utilized for this purpose, especially in the degraded land tracts of the CITB.

Soil Fertility: Soils in tribal areas are highly variable but are, in general, in dire need for investments. Living soils is a concept that indicates the presence of three Ms in soil – organic matter, microorganisms and moisture. There are several ways of improving soil health through addition of soil organic matter such as composting and recycling of biomass, green manuring and application of tank silt. Such methods also improve the in-situ water-holding capacity of soils and raise the level of soil moisture.

Crop Diversity: Tribal areas of the country retain crop diversity even today. However, they are also subject to the growing tendency to move towards monocultural practices. We need to retain diversity in the cropping systems of tribal communities with greater emphasis on climate-resilient crops like millets and pulses. To provide adequate price incentives for less favoured crops like millets and pulses, their inclusion in public procurement and distribution system is essential. They could also be introduced in the food-based entitlement programmes like ICDS and MDM.

Agronomic Practices: The framework for interventions in tribal agriculture includes ecologically balanced agronomic practices for plant protection and pest management. They attempt to move away from the use of synthetic chemical methods towards biological and organic methods. Non-pesticide Management (NPM) agriculture has emerged as a new approach to sustainable crop pest management without using synthetic chemical pesticides.

Livestock systems are closely integrated to field-based agriculture. As discussed earlier, these systems need to be supported through efforts that ensure fodder and water for livestock as well as animal healthcare facilities. While such systems are well-organized in the case of large animals and dairying, they are typically lacking in the case of small ruminants and poultry. Hence, careful investments in these livelihood activities are important for building resilience in farming as well as the landless households.

Agricultural Extension: A key element in the success of Green Revolution in India was the public-funded agricultural extension. This has undergone severe erosion in recent years in terms of its knowledge content, funding and outreach. This space has been taken over by traders and profit-seeking private corporates and seed companies. Reviving public extension system

and establishing strong links between the knowledge systems of agricultural research institutions and that of the farming communities is essential in identifying a locally appropriate path of agricultural growth.

Regularization of Tenancy: The discussion on land leasing showed that despite leasing laws, tenancy is rampant in tribal areas. The tenant farmer has no right over the land which is cultivated and hence is deprived of all benefits of government schemes. Limited regularization and recording of tenancy can be one way to take care of the problems of tenant farmers. However, stricter enforcement of laws related to moneylending and usury are needed to prevent such practices leading to land alienation. Formation of groups of farmers into farmer collectives could be the way to take tribal farmers out of the clutches of trader-moneylenders who are also large landowners.

Ensuring Rights to Tribals and Forest Dwellers Under Forest Rights Act (FRA): Implementation of the provisions of FRA has been tardy and highly inadequate to protect the rights of tribal communities over forests and commons. Except a few examples like Mendha Lekha in Gadchiroli district, FRA provisions are widely violated. The Supreme Court order for eviction of tribals from forest land also shows the weaknesses in implementation of FRA and the lack of commitment on the part of the state governments in implementing provisions related to individual or community rights.

Strong Role of Panchayat Raj Institutions: For its implementation, FRA needs strong local self-governing institutions. The Gram Sabha and Gram Panchayats in tribal areas have been mandated under FRA to protect the rights of forest-dwellers over forests and commons. Activation of the Gram Sabha requires intervention of strong community-based organizations like SHG federations. The women leaders of SHG federations can play a leading role in raising issues related to forest access in Gram Sabhas and Gram Panchayats and force them to take appropriate steps to protect the rights of tribal communities over forests.

Political Articulation: In the last analysis, improving agriculture and livelihoods in tribal areas is a political challenge. This can be achieved only through emergence of a strong political leadership among tribal communities articulating their demands. The changes visible in the status of Dalits in South and North India are primarily on account of their political mobilization. Being a minority, tribals will not be able to come to their own as a cogent political outfit, but still they could form strong alliances with other vulnerable sections and demand their rights. The fate of tribal agriculture then is dependent on their political articulation within the mainstream.

Notes

1 The number of displaced persons (DPs) on account of development projects has been estimated by Fernandes as about 60 million till 2000. He also estimated that 25% of these were tribals and another 20% were dalits. In the absence of official data the Planning Commission report quotes this estimate 60 million DPs arrived at by researchers. The Expert Group on Prevention of Alienation of Tribal Land

and its Restoration set up by the Government of India estimates that, of the total displaced due to development projects, 47% are tribal population. Xaxa Committee's own estimate of the share of tribals in DPs is somewhat lower at 31%.

2 See Prabhu, 2018 in this report. Also see Rao et al., 2006; Fernandes, 2008; and GoI, 2014.

3 Retrieved on May 8, 2020 from www.akrspindia.org.in/uploadcontent/resourcemenu/resourcemenu_13.pdf.

4 Retrieved on May 8, 2020 from www.sapplpp.org/publications/sector-studies/small-ruminants.

5 Much of the material in this section is drawn from the author's own experience of over two decades of working and living in a backward tribal area of central India.

6 The work of the partners of NREGA Consortium show that leveraging MGNREGA, such lands can be treated through appropriate measures and an irrigation source provided. Targeted interventions to augment livelihood opportunities for the landless can also be imaginatively woven into this tapestry. Through such means, the poor can be made active participants in the growth process rather than passive recipient of doles (SPS, 2016).

7 Working in tribal villages, we got a taste of this completely new form of social dynamics in tribal societies in transition, during our campaign for regularizing and updating land records in the 90-village tribal enclave in Bagli tehsil of the Dewas district of Madhya Pradesh in 1996 (see Shah et al., 1998).

8 This framework for tribal agriculture with its components has emerged through close interaction between civil society organizations, scientists and activists who are partners of the Revitalising Rainfed Agriculture Network (RRAN) – www.rainfedindia.org.

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3 Managing Groundwater Across the Diverse Central Indian Drylands

The Need for a Nuanced Approach

Siddharth Patil, Neha Bhave, P.S. Vijayshankar and Himanshu Kulkarni

Background

The importance of rivers across the Indian subcontinent is quite well known. Their religious and cultural significance is not only well studied but even celebrated in different quarters. What is not easily perceived is that the use of groundwater, generally across the world and especially in the Indian subcontinent, also goes back many centuries, possibly millennia, clearly pre-dating the call for large, centralized surface water systems. Ramesan (1987) tells us how recorded history, going back 5,000 years, shows evidence of open wells and other hydraulic structures tapping groundwater in China, India and Iran. Systematic groundwater usage began as humans moved from foraging (hunting-gathering) to sedentary (settled) farming between 9000 and 10500 before present (BP); systematic surface water usage along river valleys developed closer to 8000 BP (Moench et al., 2012). Millions of farmers across the world drilled their own wells to obtain access to groundwater for overcoming climate-related uncertainties and to tide over the limitations from centralized surface-water supplies, during the last half century. Llamas and Martinez-Santos (2006) called this *the silent revolution*, probably because it sometimes went against national policies or often ran parallel to many such policies. This silent revolution was especially relevant to bringing water to arid and semi-arid regions making it of great significance to world water policy.

Much has been written about the development of India's irrigation system after Independence. In the early decades of independent India, the major paradigm on water involved the construction of large dams in the major river basins of the country to create irrigation potential and foster agriculture development besides generating power (Shah and Vijayshankar, 2016). In some ways, this was a carryover of the colonial legacy of large dam construction and command area development for increasing the irrigation potential for India's agriculture and food security. There are clear limits to

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the role of large, new dam projects in providing economically viable augmented water storage (Ackerman, 2012). Most of India's peninsular rivers have reached either total or partial water closure (Amarasinghe et al., 2007). Further, there is little value in creating additional storage in most of the peninsular river basins (Briscoe and Malick, 2006).

Until about the nineteenth century, groundwater access was mainly about finding sources and gaining access to groundwater, usually for community water requirements. Recent history indicates how independent India inherited one of the world's largest irrigation systems to which we added many more – mostly dams and canals. However, in the, "to have (dams) or not" debate, groundwater remained a blind spot that was taken for granted. Even in the case of the Narmada debate, the neglect of base flows (Ranade, 2005) is symbolic of the way groundwater has been looked upon in public policy space. Groundwater irrigation, which, even today, remains the backbone of Indian agriculture has turned into an anarchy of millions of groundwater users in India (Shah, 2009), over whom the state has little control. India's groundwater story, therefore, is quite unique. While policies and programmes under India's quest for food security were focusing on surface water irrigation through dams and canals, Indian farmers enabled groundwater irrigation mostly through their own investments, whether support from public programmes was forthcoming or not. The share of tubewells and borewells in irrigated areas rose from a mere 1% in 1960–61 to 40% in 2006–07, showing the remarkable growth of groundwater sources and irrigation. It is estimated to be more than 50% currently, making tubewells and borewells the largest single source of irrigation water in India. Add to this the more traditional dugwells and the natural springs and one cannot agree more with the national statistic that 70% of water in agriculture, 90% of rural drinking water and some 50% of urban water today is groundwater (DDWS, 2009; The World Bank, 2010; Ministry of Agriculture, 2013; NIUA, 2005; Narain, 2012).

Groundwater accounts for 94% of the MI schemes as per the 5th Minor Irrigation Census (2013–14) data. The following aspects are especially relevant from the figures in the census:

1 There is a steady increase over different MI censuses in groundwater structures. The current number is 20 million (for irrigation only; drinking water wells are separate).
2 Nearly 60% of the MI structures are tubewells. This proportion may have been lower earlier.
3 Nearly 12% of the MI structures are "Deep Tube wells" (of depth over 200 feet); this clearly shows the increasing depth of groundwater extraction.
4 The share of SC and ST farmers in all wells and tubewells is lower than their share in total population (20% and 8% respectively). This shows their deprivation in terms of ownership of irrigation assets.

5 Nearly two-thirds (66%) of all the wells and tubewells are owned by small and marginal farmers. Though this is lower than their share in total farming population (80%), this percentage is quite significant. It brings out the fundamental problem of groundwater management in India – that most of the wells and tubewells are owned by smallholder farmers and they are crucial for their survival, given the small size of their landholdings. The smallholder farmers now cultivate nearly half of the total cropped area. Their livelihoods will be affected significantly if they do not have access to groundwater. Even if they do, the risks in production and productivity from smallholdings create many questions around efficient extraction and equitable management of groundwater resources.
6 About 70% of the groundwater structures are fitted with electric motors. Electricity is by far the major source of energy for pumping in south, west and northwest India, where groundwater irrigation is the most common mode. However, the east and northeastern states are still dependent on diesel energy for pumping. Hence, the arguments that rural electrification is the key to unlocking agricultural productivity in eastern India has increasingly taken shape (Mukherji et al., 2012).

Region-wise data show that the Central Indian Tribal Belt (CITB) is highly deprived of irrigation assets as its share is less than 10% in the case of shallow and deep tubewells and around 20% in the case of dugwells. However, this cannot be a case for "intensifying groundwater use" in the region, particularly through borewells and tubewells. We need to have better understanding of the groundwater system before proposing such big-ticket solutions. Given this background, this chapter attempts to present data from the 5th Minor Irrigation Census as a means of discussing the need for more local-level perspectives in managing groundwater in this region.

Crises and Responses: Disaggregated Approaches

The Mid-Term Appraisal of the 11th National Five-Year Plan noted that nearly 60% of all districts in India have problems related to either the availability (quantity) or quality of groundwater or both. Drawing from these indications, the Working Group on Sustainable Groundwater Management, formed for preparation of the 12th Five Year Plan, identified depletion of groundwater and deterioration in its quality as major challenges to water security in India. The Planning Commission of India in its 12th Five Year Plan highlighted the need for a paradigm shift in groundwater management, focusing on a participatory approach to sustainable management of groundwater, even while it made a strong case for bridging the gap between irrigation potential created and irrigation potential utilized in the case of the major and medium irrigation projects (Planning Commission, Government of India, 2013). Even then, Planning Commission highlighted

the potential for facilitating improved groundwater management through key rural development programmes like Integrated Watershed Management Programme (IWMP), Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and the National Rural Drinking Water Programme (NRDWP). While the programmes continue in some form or the other, it is being increasingly felt that the convergence – in this case between groundwater and watershed management – is best achieved through the Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) that has the central focus on "water for every farm" or "Har Khet ko Paani", as it is mostly called.

However, crises surrounding groundwater resources have rendered aquifers overexploited with fallouts in the form of acute scarcities and serious groundwater quality problems even as the gap between irrigation created and irrigation utilized continues to haunt both policymakers and practitioners alike. This fairly well-accepted argument about surface water irrigation can be seen in a somewhat different context for groundwater. It is well known that nearly 30% of the groundwater assessment units (talukas, blocks) are in some or the other degree of over-extraction, that is semi-critical, critical or overexploited (CGWB, 2017). If we consider these blocks to have exceeded their potential for irrigation, then what this statistic is often construed to tacitly imply is that the other units (safe) have not realized their potential for groundwater irrigation and are there to be developed for groundwater resources and possibly even exploited. Hence, the definition of the crisis is not just about what is happening in irrigated areas and in irrigated agriculture but is also embedded within the strong articulation of taking the Green Revolution package to rainfed areas through aggressive groundwater development (Shah et al., 2016).

In simple terms the water crisis, purely from the context of all agriculture, including rainfed farming has the following salient features:

1 Race to the pumphouse, for irrigated crops, precluding smart investments from flowing into water management for rainfed farming.
2 Presumptuous argument of unlimited benefits for increasing irrigation (especially through farmers' wells), without properly understanding the actual increment to soil moisture and aquifers from such conservation efforts.
3 The fragmentation of water resources (aquifers, watersheds, river basins) with highly disaggregated access (sources) implies that the principle of common pool remains far removed from the practice of water use in India. In many ways, this argument is spilling over into rainfed farming, particularly through the focus on individual assets (wells, for instance) rather than public ones.

Drought problems in India are being increasingly tackled through *watershed development* projects, although approaches such as livelihoods-based

interventions are becoming more prevalent, based on specific typologies of situations in India. Artificial recharge forms a significant component of many such projects, the full repercussions of where, when and in what way artificial recharge is most effective notwithstanding. In this regard, watershed development projects are still quite broad-based, limiting their full potential, which can otherwise be achieved using better *groundwater management* strategies. The hydrogeological nuances resulting from highly variable rainfall, and more significantly from a variable geology, are seldom captured during the implementation of watershed development projects, often rendering impacts to groundwater resources "visible but limited". Groundwater management in watershed development projects requires a solid *scientific foundation* on which the modalities of *groundwater use* in the area can be planned and implemented (this, currently is largely outside the ambit of most watershed development programmes).

Embedding the concept of "protective irrigation security" into both watershed development and groundwater management forms a vital component of a comprehensive livelihood security strategy. Unless livelihood sustainability is linked to the management of natural resources, especially water, agricultural sustainability cannot be achieved. Distributing small amounts of water to many may be prioritized on the basis of domestic water security, kharif water security, rabi water management and summer irrigation. Kharif water security holds great potential given that the demand for protective irrigation water being smaller can be taken to many farmers and farmlands to achieve improved productivity at scale.

Moreover, informed thinking and decision-making around groundwater by the community can be facilitated in diverse hydrogeological backgrounds. Rainfed areas in India are not necessarily contiguous, implying that a smart combination of inputs to rainfed farming combined with demand-side groundwater management through a "participatory groundwater management approach" will ensure two broad outcomes:

1 Improved efficiencies of conjunctive rainfall–groundwater use leading to combined productivity boosts to farming and water, not to mention increments in livelihood incomes;
2 Expanding the range of public (and possibly private) investments on a specific protocol that prioritizes protective irrigation for rainfed agricultural systems – crops, farms, farmers and areas.

India being an agrarian economy, much importance has been given to agriculture and related activities that support or boost agricultural productivity. Increase in agriculture has helped improve livelihood and alleviate poverty as well as improve rural development. Nearly 50.8% of the population in our country was dependent on agriculture in 2007 (Directorate of Economics and Statistics, 2010). Along with livelihoods security, agriculture also ensures food security to a population of nearly 1.3 billion. Access to and

reliability of irrigation has helped stabilize incomes and risks in agriculture (Moench, 2002, 2003). Agriculture production and productivity have improved wherever access to irrigation has been enabled. In developing countries such as India, increased access to groundwater has served as the primary mechanism for poverty alleviation, whereby small farmers even in deep interiors have gained access to irrigation through private investments (Shah, 2009).

From 1995–96 to 2010–11, the percentage of net irrigated area of the net sown area has increased from 38% to 46% (Agriculture Census, 1995–96 to 2010–2011). Groundwater has been the most significant factor to the increase in the net irrigated area. During the year 1950, contribution of groundwater to total net irrigated area was 29% which, in year 2003, had increased to about 62% (Kulkarni et al., 2009).

In the period between 1995–96 and 2010–11, the share of groundwater in the net irrigated area has always been higher than that contributed through surface water structures (Agriculture Census, various years) as shown in Figure 3.1. Today, in India, there are close to 30 million wells according to Shah (2009). Despite this large dependency on groundwater, there is still a race among farmers to own individual wells or borewells. Further, the unfettered growth of groundwater structures easily lends itself to the purpose of improving livelihood security and standard of living, whether through government-supported programmes or through private investments by farmers themselves. However, none of the programmes looks at the consequences such initiatives have on the resources itself, that is on *aquifers*. Whether different aquifer systems can sustain such large-scale development and how such precariously planned groundwater schemes will manifest

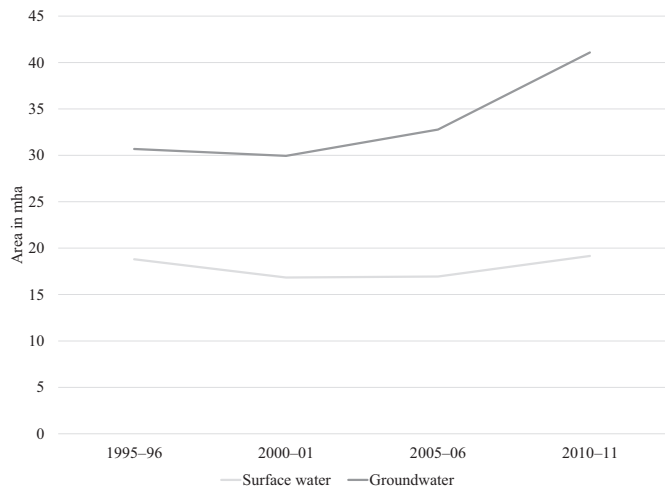

Figure 3.1 Share of surface water and groundwater in net irrigated area

Source: Agriculture Census, various years.

themselves in different hydrogeological settings are points to be pondered upon.

Despite the presence of more than 30 million wells and numerous groundwater schemes, there is large disparity within the agricultural productivity in India, primarily due to the lack of or insufficient access to irrigation. To improve this coverage, Government of India has formulated the "Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)" with a component of "Har khet ko Pani" which promises to improve irrigation coverage in every village by the year 2020 by constructing water harvesting structures, which will provide for irrigation access. In a policy paper, Shah et al. (2016) argue that construction of water harvesting structures is a redundant solution that is fraught with many problems. Some of the reasons highlighted by them are first, the increasing gap in the IPC and IPU of the major, medium and minor irrigation projects which have proven to be of limited application to agriculture, and the second and most important aspect is the preference of farmers for groundwater-based irrigation sources which has led to an additional 40 mha under irrigation. The proposed strategy to better implement PMKSY according to Shah et al. (2016) is to target 112 irrigation deprived districts in India, where less than 30% of the farm holdings have access to any type of irrigation. In these districts, it is recommended that access to wells or borewells with a solar pump-set and distribution pipe be provided. It is also suggested that given the poor outreach of rural electrification in many parts of the country and the high cost of diesel, solar pumps of 3.5–5 kWp be distributed. In doing so, by 2020, 1–1.5 million additional irrigation wells will be added, which, in turn, is estimated to increase the area under irrigated agriculture by 5–7.5 mha.

According to the 2017 assessment by Central Groundwater Board (CGWB), the net annual groundwater availability within the targeted 112 districts is highly variable, ranging between 6,372 ha m and 2,22,910 ha m for The Dangs (Gujarat) and Kokrajhar (Assam) respectively. The degree of groundwater development varies between 5% and 94% for the districts of Dhemaji (Assam) and Anantapur (Andhra Pradesh) respectively. Thus, all except seven districts from Maharashtra, Andhra Pradesh and Jharkhand are classified under the "safe" category. While the net irrigated area in the focussed districts remains below 30%, the Agriculture Census (2010–2011) also highlights that more than 50% of the landholdings receive groundwater-based irrigation either from wells or tubewells in 55 districts. In addition to this, the 5th Minor Irrigation Census (2013–2014) shows that there are 95 such districts where more than 70% of the MI schemes are groundwater based.

The Notion of Surplus Groundwater

The notion of surplus groundwater needs a detailed discussion at the policy level. The CGWB's periodic assessments are used as the baseline

for determining regions with "surplus" groundwater or districts that are "flush" with groundwater (Shah et al., 2016). The periodic assessments on India's groundwater by the CGWB is a broad indicative canvass of the status of India's groundwater resources. The scale of the assessment is a block or taluk. In only a few states, such as Maharashtra, the assessment follows a watershed scale approach to assessment; in most other, the assessment is at the scale of administrative units. The data is presented only for "annually replenishable" groundwater resources which translates into the annually recharged groundwater. The assessment is largely an estimate based on water level fluctuation or empirically based on rainfall and infiltration factors. As this chapter will demonstrate, the recharge and discharge from aquifers even within the same agro-climatic regions and the same geology can depend on a variety of factors of which the most important are the scales of aquifers and the aquifer characteristics.

The assessments also use a factor between 5% and 10% for estimating natural discharge (base flows) from aquifers (CGWB, 2011). Given the lack of actual measurements of river flows, especially in the non-monsoon seasons, the natural discharge from aquifers may be grossly underestimated. While the discussion on the methodology requires a more detailed and dedicated chapter, it is clear that the ecosystem services provided by aquifers for maintaining all-year round river flows through the contribution of base flows is not recognized in the larger discourse on improving livelihoods of small and marginal farmers through intensive groundwater irrigation. Figure 3.2 shows the difference in annual river flows in eastern and peninsular India. The effect of drying up of rivers is significant in the non-monsoon season which highlights the linkages between base flows and seasonality of rivers. Therefore, on the one hand, there is a large push at the policy level for rejuvenation of rivers while on the other hand, there is an increasing dialogue on "exploiting" aquifers in the tribal dominated regions for improving livelihoods. While livelihood security of the tribal population is crucial, the impact of overexploitation of aquifers will be felt strongly on ecosystems

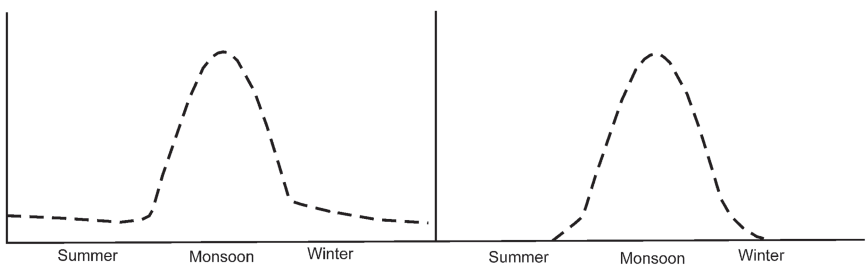

Figure 3.2 Conceptual hydrographs for rivers in eastern India (left) and peninsular India (right). Base flow depletion due to overexploitation of groundwater has led to many perennial rivers becoming seasonal

if the question of sustainable management of aquifers is not addressed in the tribal-dominated regions of central India. Drying up of rivers has impacts not just on ecosystems but also on livelihoods dependent on the rivers as well as the planned surface water infrastructure leading to open conflicts that are increasing by the day in India.

The 5th MI census points out that the highest increase in the number of MI schemes is in the peninsular hard rock region, where deep tubewells have almost doubled (Minor Irrigation (Statistics) Wing, 2017). This trend can be linked to the phenomenon observed in Figure 3.2. Deep tubewells in the peninsular and western India have increased given the depletion of the shallow aquifers, often in the form of complete dewatering of aquifers with no hydraulic connection with the surface water channels. The depletion in shallow aquifers leads to reduced base flows as shown in Figure 3.2. The Eastern Indian Plains and central tribal belt do not show groundwater exploitation to the extent of that in the western and peninsular India (CGWB, 2017) and the widespread presence and use of dugwells points to shallow aquifers in a healthy state with significant base flows in the non-monsoon seasons helping sustain rivers throughout the year.

However, the report also states that the number of dugwells, surface flow and surface lift schemes has registered a significant decrease in the eastern region. There is an increase of 13% in deep tubewells in 5th MI Census in this region. Although this increase in deep tubewells in the Eastern Indian Plains is the lowest across India, it points to two aspects:

- There is a "lag" in the Eastern Indian Tribal Belt's access to technology and markets. A case study later in the chapter discusses this phenomenon in more detail.
- Eastern Indian Plains are poised to follow the same trajectory of groundwater development that the western and peninsular India have followed, as farmers are opting for deep tubewells over shallow tubewells and dugwells.

The Issue of Scale and Variability

CGWB Assessments: The 112 districts from 12 states of India that are chosen as the priority regions where PMKSY should be targeted are those where less than 30% of the holdings receive irrigation despite having surplus groundwater.

The district-level scale of the CGWB's assessments does not present an accurate picture of the ground reality. As shown in Figures 3.3a and 3.3b, there is significant variability in the district-level and block-level assessment for the same assessment year.

While the district-level data shows that only six of the 112 districts are semi-critical and one is critical, the block-level assessment shows that there are blocks from the whole spectrum of CGWB's classification that are under

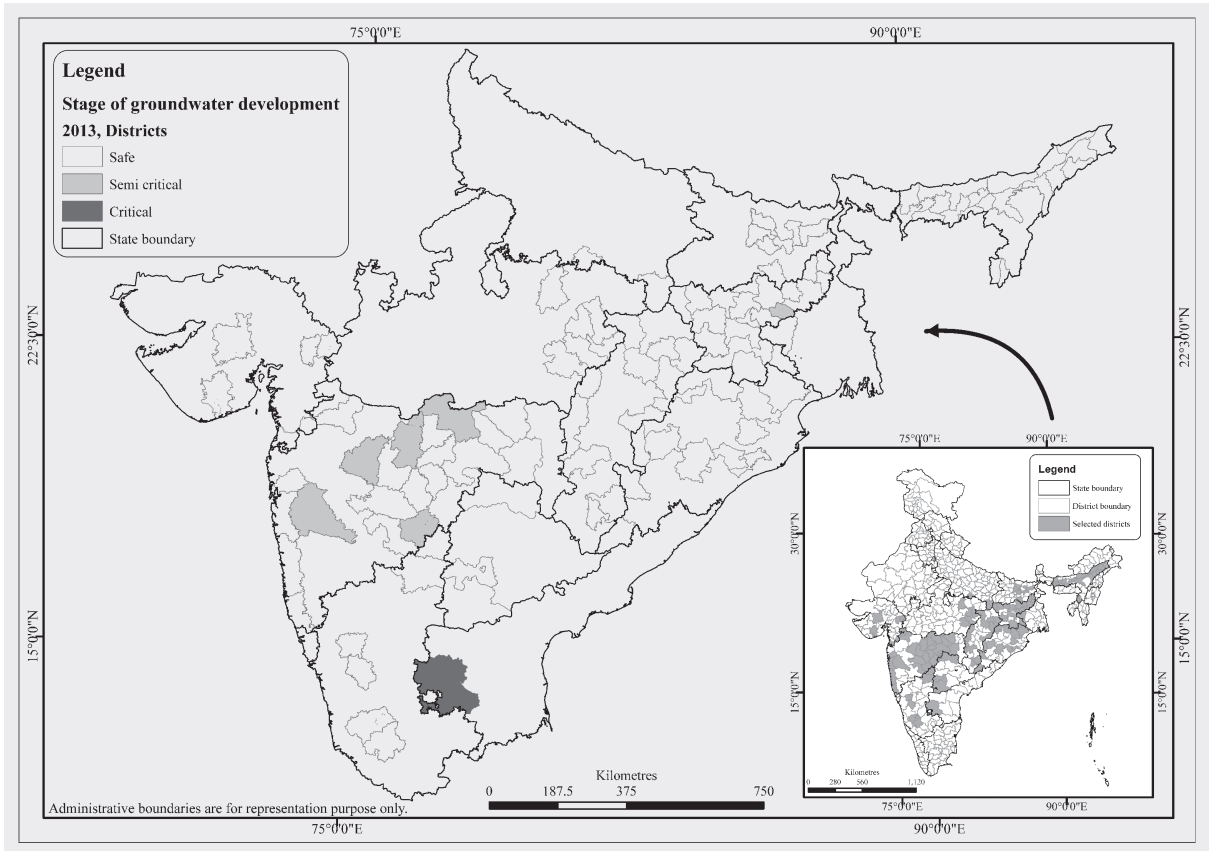

Figure 3.3a Comparison between the district-level and block-level assessment of CGWB for the year 2013
Source: Maps developed by the authors from CGWB, (2017).

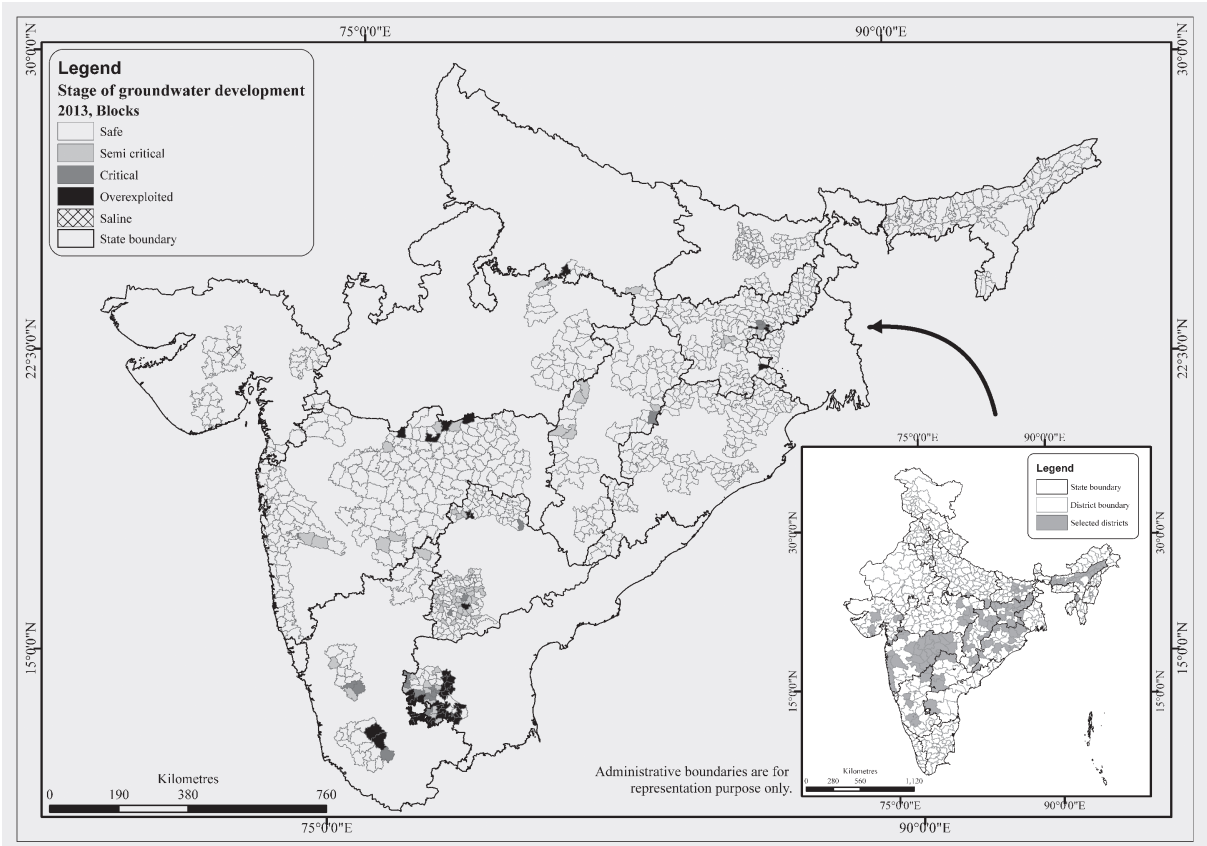

Figure 3.3b Comparison between the district-level and block-level assessment of CGWB for the year 2014
Source: Maps developed by the authors from CGWB, (2017).

the overexploited and saline categories of the assessment. Moreover, the only water quality parameter that is being considered in the CGWB assessment is salinity. Many of the 112 selected districts such as those in Assam and Bihar are known to be arsenic affected. There is proven research on the migration of arsenic through water into food grown through irrigation by contaminated water. Fluoride is another contaminant that needs to be considered given the prevalence of districts covered by crystalline basement rocks. Even at the block level, the assessment may not always represent the real conditions on the ground, given the variability in aquifer systems that is discussed later. The methodology followed by CGWB averages the stage of groundwater development for all the blocks in order to arrive at the district-level values. This purely mathematical approach to an extremely complex resource has led to the loss of granular details at the block level.

Aquifers are not considered as a unit of assessment and therefore even watershed scale assessments may not fully represent the actual status of groundwater resource for a particular region, at the scale of aquifers. Despite this flaw in the methodology, even if the CGWB's assessment is considered to provide a fair picture of the status of groundwater, the difference in the block-level and district-level data points us towards the need to granular assessments at aquifer scales. Figures 3.3a and 3.3b are also an important indicator that district-level (or even block-level) assessments cannot be used for planning large government schemes. The promotion of intensive irrigation in districts where certain blocks are already facing a competition over the resource may result in a worse situation over the short term. There is a need for local, aquifer-level assessments of the 112 districts before planning any large scheme that will promote intensive irrigation. This is further explored through the data from the Agriculture Census (2010–11) and the 4th and 5th MI census.

Agriculture and MI Census

The 112 districts show a very low percentage (less than 35%) of irrigated area (Agriculture census, 2010–11). Within the irrigated area, groundwater forms the preferred source for irrigation in many districts that fall under the category of irrigated area. There are trends of groundwater share in irrigated area as well as groundwater-based MI schemes within the 112 districts (Figures 3.4 and 3.5). The districts in Maharashtra, Madhya Pradesh, Gujarat, Karnataka, Andhra Pradesh, Telangana, Jharkhand and Bihar show a very high percentage of groundwater-based MI schemes. A comparison between Figure 3.4 and Figure 3.5 also brings out the variability within these districts. Even though more than 90% of the MI schemes in most of the districts of the state of Assam are based on groundwater, the share of groundwater in the total irrigated area under MI schemes is lower than 30%. Similar trends can be observed in some of the districts of Maharashtra and Odisha. On the whole, the western part of the belt of

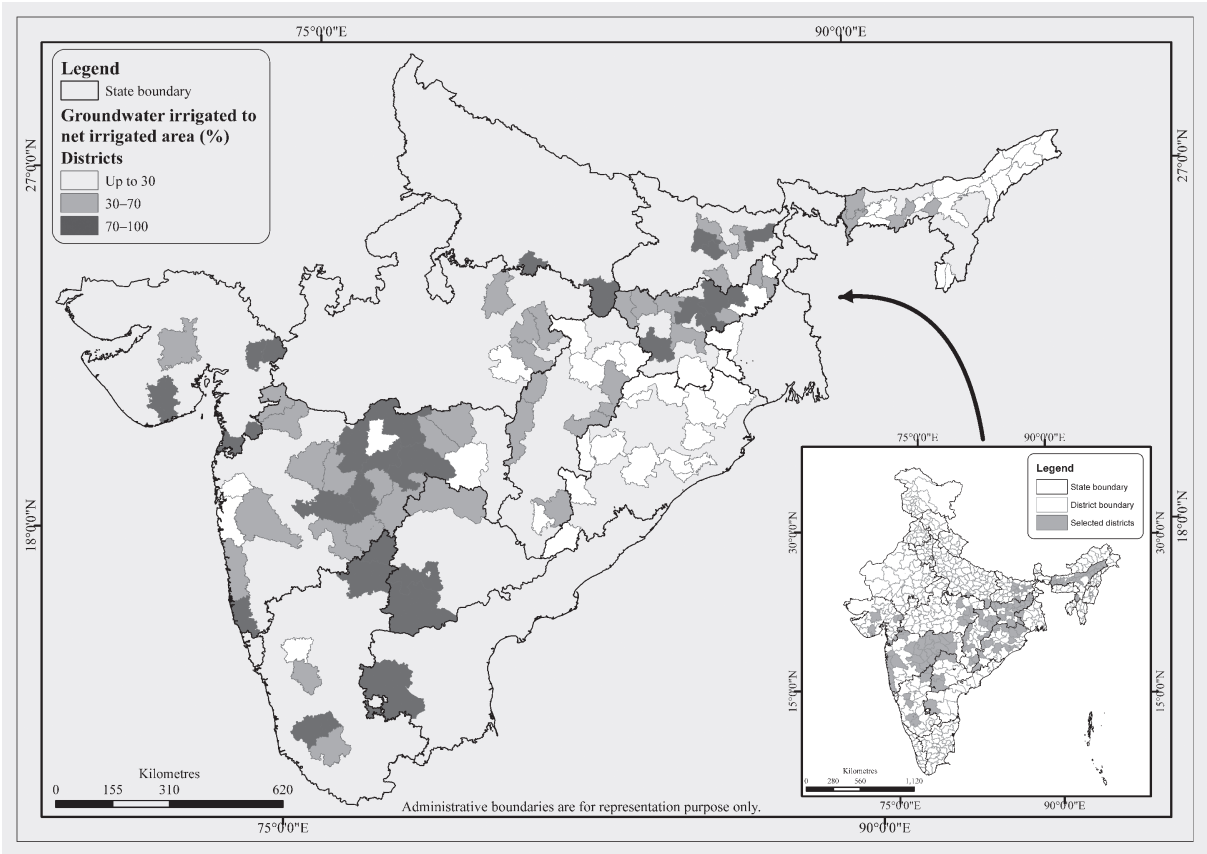

Figure 3.4 Share of groundwater irrigation in the net irrigated area

Source: based on the latest Agriculture Census (2010–11).

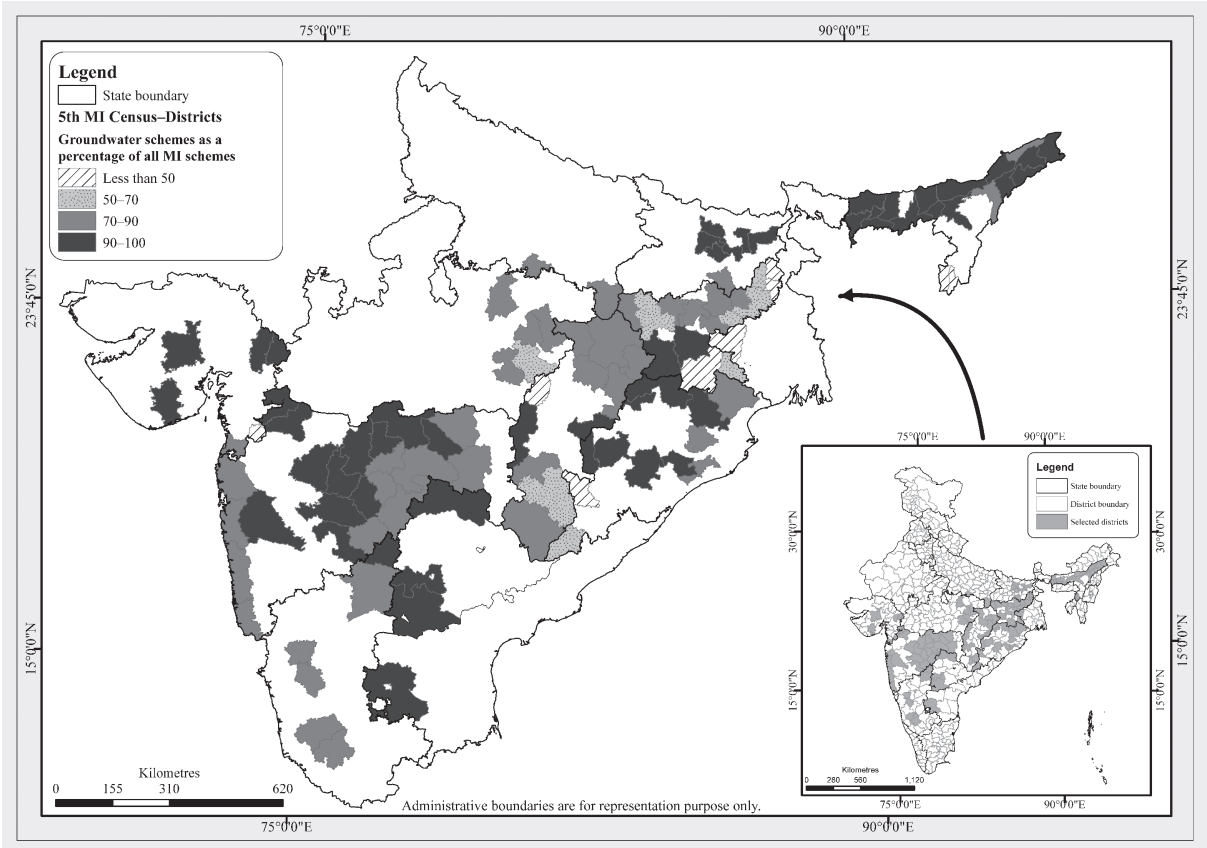

Figure 3.5 Share of groundwater in all MI schemes

Source: 5th MI Census.

112 districts clearly shows a greater groundwater access and usage for irrigation as compared to the eastern districts. As with the CGWB assessments, it is evident that simply considering the irrigated area of a particular district is not enough for launching blanket programmes on irrigation.

At a finer resolution of the landscapes, especially in areas underlain by local aquifer systems, one may encounter three possibilities on the ground:

1 Area where large-scale groundwater overexploitation has occurred and where groundwater is used across different seasons for irrigation – protective irrigation for kharif crops, mainstream irrigation for rabi cropping and irrigation for at least a limited quantity of summer cropping.
2 Area where groundwater development is quite limited, but farmers have created some access through private investments on wells – in other words, farmers involved in large-scale protective irrigation as priority and possibly limited rabi irrigation; often, such farmers do not have access to electricity and depend upon diesel for pumping groundwater.
3 Areas that have no access to irrigation – neither in kharif nor for rabi – areas that are entirely rainfed and are usually under a single season of cropping.

The primary reason for arriving at these three classes is the fact that these three categories may exist even in a single area, say in a watershed or a slightly larger unit of a small river basin. And this is really the reason why we need to be careful in assigning characteristics to large swaths of landscape under any single category.

Further, Figure 3.6 provides insights into the percentage of groundwater schemes which are not being used and Figure 3.7 shows the percentage of schemes that are dysfunctional owing to low discharge or drying up of wells. The percentage of schemes that are not working is low in a majority of the districts, however, up to 30% to 50% of schemes in 17 districts (15% of the 112 districts) and more than 50% of the schemes in 32 districts (29% of the 112 districts) are not being used owing to low discharge and drying up of wells. Comparison of data from the 4th and 5th MI censuses reveals that in nearly 54% of the districts the percentage of dysfunctional groundwater schemes has increased due to these two reasons. The percentage of wells that are temporarily not functional due to low discharge and permanent drying up is very high when considering the public investment being proposed for intensifying groundwater irrigation in these 112 districts.

Hence, while groundwater usage is more widespread in the western portions of the region, districts in eastern India are not necessarily entirely rainfed and groundwater deprived. The chequered picture of groundwater dependency, exploitation and sources running out of use clearly needs a more nuanced, locally strategized approach than a big ticket, policy-friendly approach that is often proposed for regions and states.

Figure 3.8 depicts the selected districts as per the region in the MI Census. The 112 districts cover only three of the regions outlined in the MI Census (Minor Irrigation (Statistics) Wing, 2017). Figure 3.9 shows the percentage

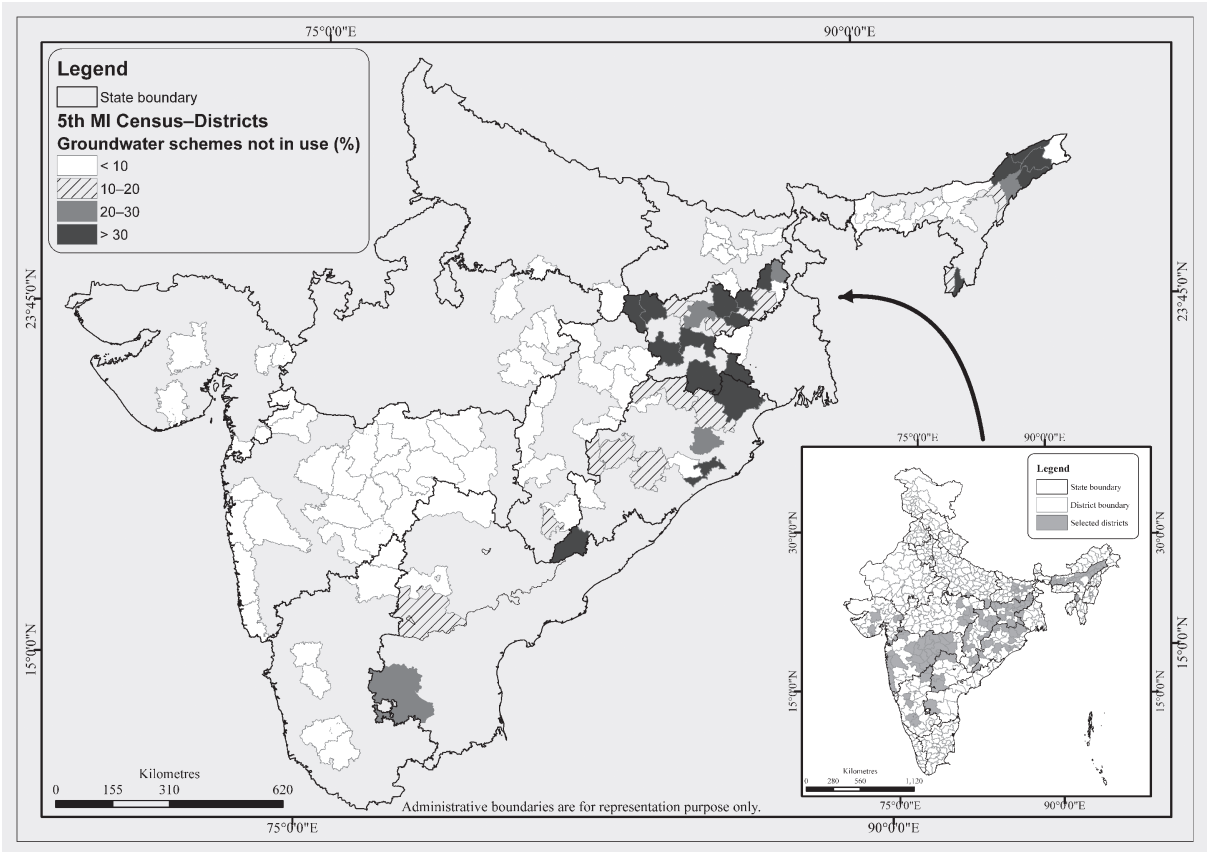

Figure 3.6 Groundwater schemes not in use

Source: 5th MI Census.

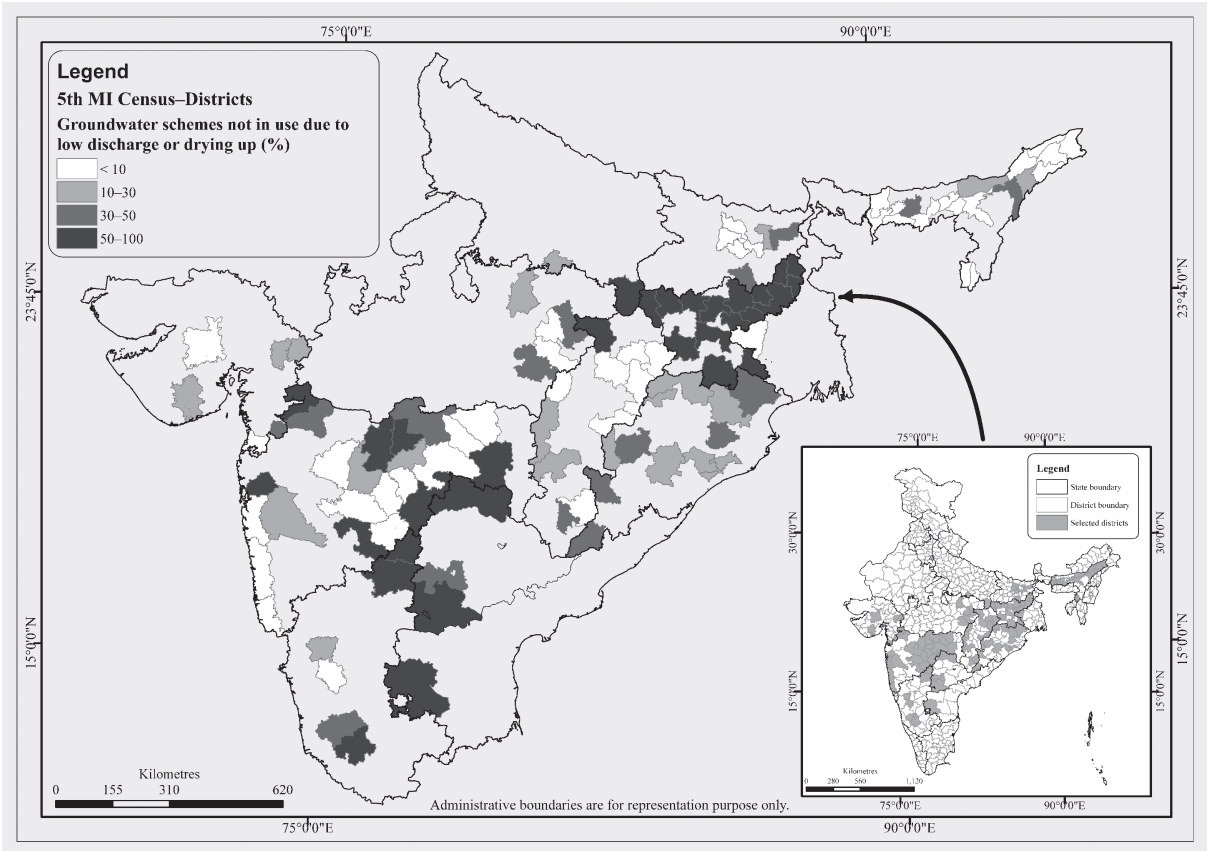

Figure 3.7 Groundwater schemes not in use due to low discharge and drying up of wells
Source: 5th MI Census.

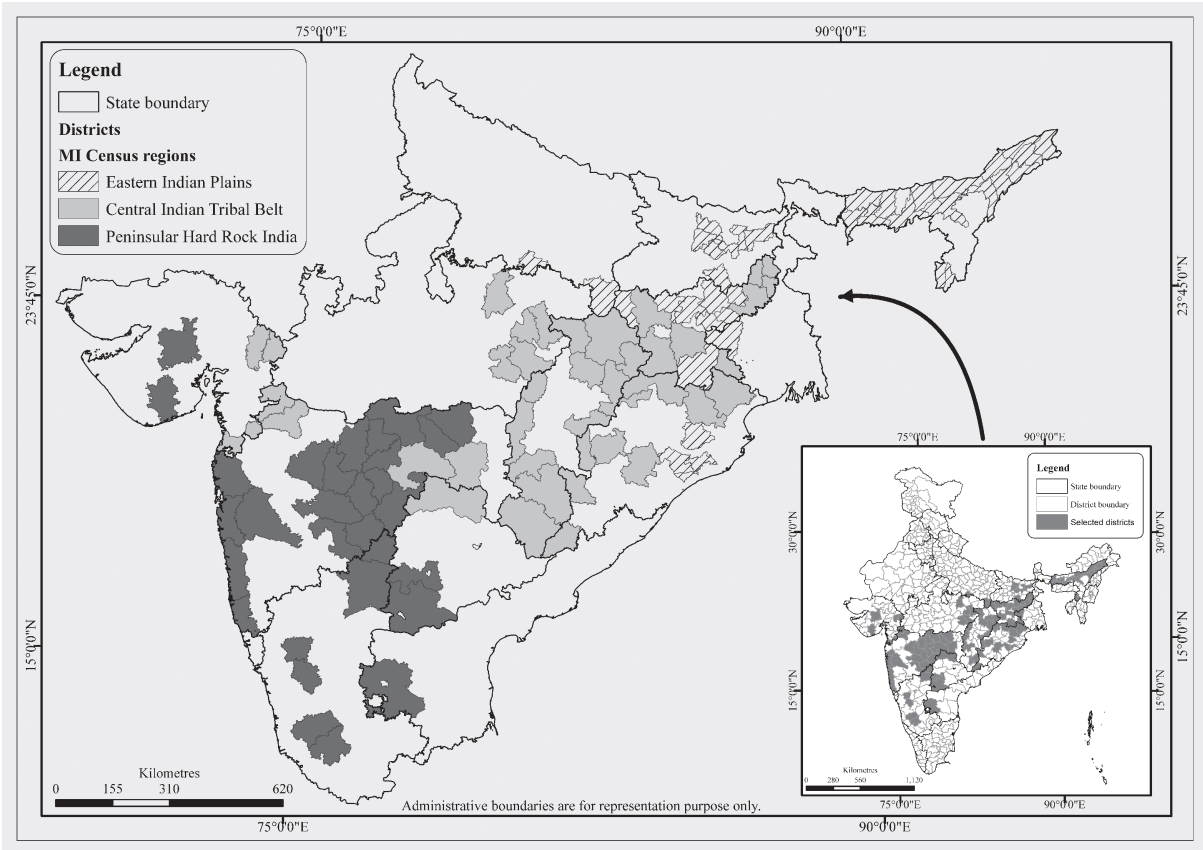

Figure 3.8 Classification of the selected districts according to regions in the MI Census

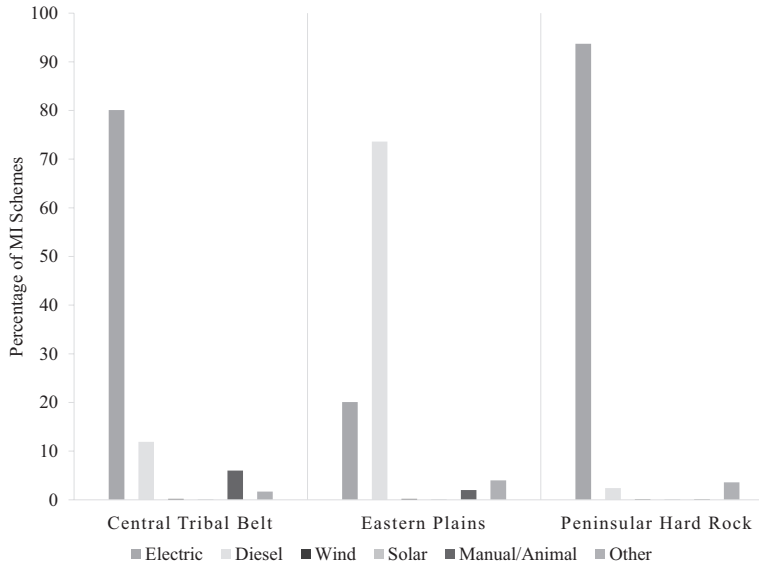

Figure 3.9 Region-wise energy source for groundwater extraction
Source: (Minor Irrigation (Statistics) Wing, 2017).

of schemes according to the source of energy. It is evident that except for the districts under the Eastern Indian Plains, majority of the selected 112 districts use electricity as the main source of energy for groundwater-based MI schemes. Many districts under the peninsular hard rock and central tribal belt regions also show a high degree of schemes not in use due to low discharge or drying up of wells. While the "Central tribal belt" is deprived of irrigation assets as per the 5th MI Census, the deprivation is not due to lack of electricity as is the case in the Eastern Indian Plains. The argument of rural electrification for unlocking the potential of irrigation in eastern India (Mukherji, 2012) does not hold true for the central tribal belt. The low irrigation potential is not just a factor of number of wells and the source of energy for pumping. At the same time, Figure 3.10 shows that majority of the wells constructed during the 5th MI census are through individual finance and not through government schemes. Given the high degree of complete or partial failure of groundwater MI schemes, it is evident that individual farmers stand to lose economically in the event of lower-than-expected yields or eventual drying up of wells, especially in the central tribal belt and hard rock areas of peninsular India. Moreover, there is clearly a hydrogeological angle to the nature of usage and emerging challenges in this region, important aspects of which are discussed in the following.

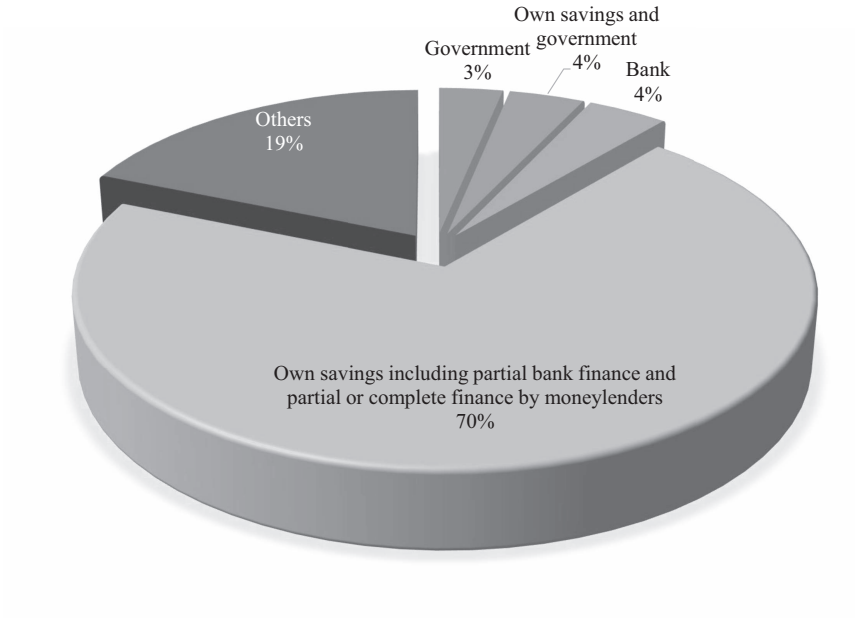

Figure 3.10 Sources of finance for irrigation wells
Source: (Minor Irrigation (Statistics) Wing, 2017).

The Hydrogeological Angle

The 112 districts overlain on the hydrogeological formations of India (Kulkarni et al., 2009), reveals that they fall into all the six hydrogeological topologies, the most dominant being the crystalline systems followed by the volcanic and alluvial systems. The districts have been selected based on the status of irrigation and tribal population. While proposing intensification of groundwater-based irrigation, little consideration has been given to the hydrogeological set-up of these 112 districts. Unlike surface water, the availability of groundwater is neither uniform, nor dependent only on rainfall. The availability and sustainability of groundwater resources depend on aquifer properties which are quite variable across the six different hydrogeological formations (Kulkarni et al., 2009; Vijayshankar et al., 2011; Kulkarni et al., 2015) shown in Figure 3.11.

A combination of the hydrogeological formation, level of groundwater development and the percentage of MI schemes based on groundwater reveals that out of the 112 districts, the stage of groundwater development

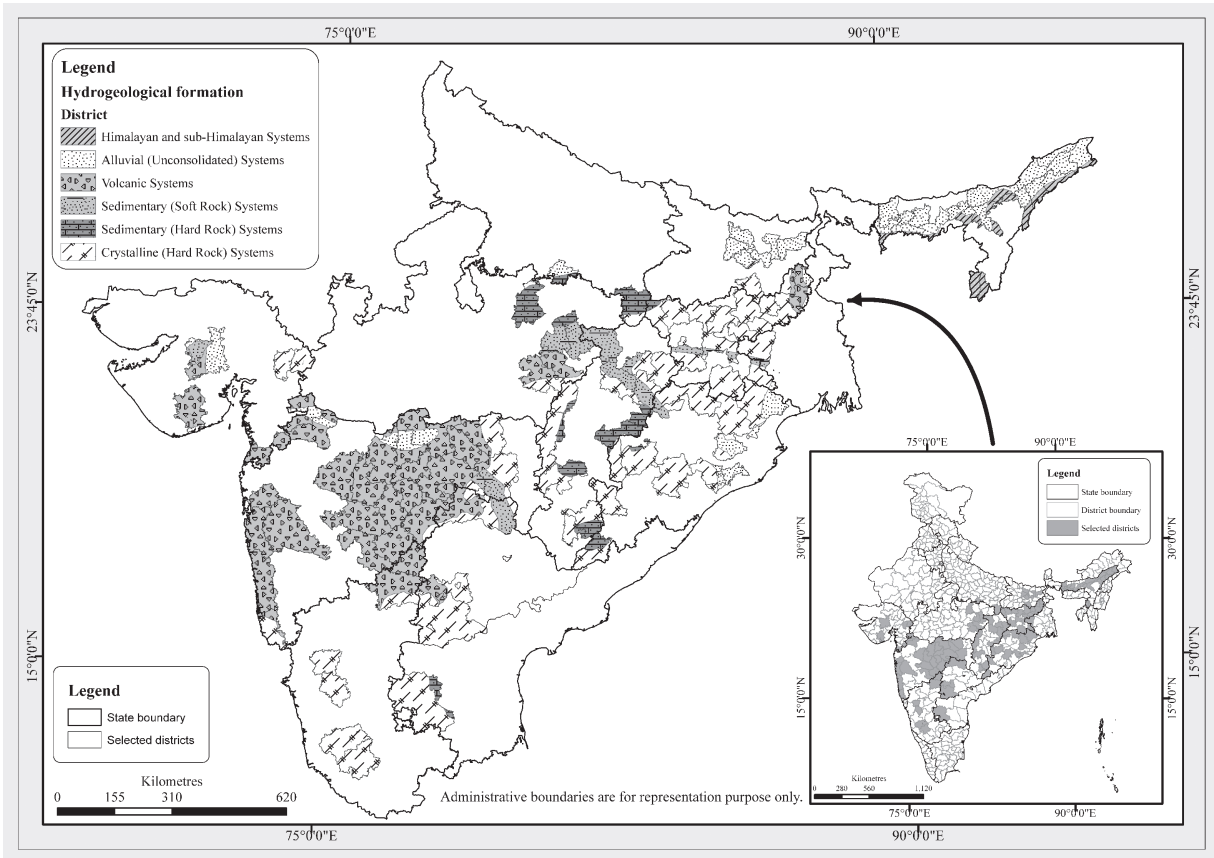

Figure 3.11 Overlay of the 112 irrigation-deprived districts

Source: (Shah et al., 2016) on the hydrogeological formations of India (Kulkarni et al., 2009).

Table 3.1 Status of Groundwater Development in the 112 Priority Districts

State	*No. of districts*	*Dominant aquifer system*	*Stage of groundwater development % (CGWB, 2013)*	*GWI/ NIA % (Agriculture Census, 2010–11)*	*% GW-based MI schemes (5th MI Census)*
Andhra Pradesh	1	Crystalline	94	80	94
Assam	19	Alluvial	5–55	0–61	4–100
Bihar	7	Alluvial	24–55	56–100	90–100
Chhattisgarh	11	Crystalline and hard sedimentary	10–61	5–67	0–99
Gujarat	6	Volcanic and crystalline	32–66	67–83	40–99
Jharkhand	16	Crystalline	10–77	1–93	32–92
Karnataka	6	Crystalline	32–67	6–97	82–94
Madhya Pradesh	5	Volcanic along with hard and soft sedimentary	6–28	3–64	56–88
Maharashtra	23	Volcanic	12–78	3–92	74–98
Odisha	12	Crystalline	12–35	0–26	50–94
Telangana	3	Crystalline and volcanic	38–66	50–89	49–61
Uttar Pradesh	2	Hard sedimentary	44–64	72–73	87–88
West Bengal	1	Crystalline	9	3	19

is above 70% in seven districts. In these districts, more than 70% of the MI schemes are sourced from groundwater (Table 3.1). There is also a high degree of variation in the development of groundwater within each state as well. While in Assam the coefficient of variance (C.V.) of groundwater development is 75%, in Karnataka it is only 24%.

In Dhemaji district of Assam, where groundwater development is the least (only about 5%), close to 79% of the MI schemes are groundwater based, while on the other hand, Anantapur district in Andhra Pradesh has a groundwater development index of 94% with 94% groundwater-based MI schemes. The former district is underlain by alluvial aquifer and the latter by crystalline aquifers. Hence, these percentages themselves have distinct connotations. The inherent difference between these two hydrogeological systems is the way in which groundwater is stored and transmitted in aquifers. This factor, in turn, governs the way in which the groundwater crisis of aquifer depletion and contamination will unfold in these two settings. Thus, a district such as Anantapur, which is already in the critical stage will soon go into a state of overexploitation, if groundwater development is increased further. As against this, in Dhemaji, it will take a much longer time to reach visible effects of overexploitation. However, in the long term, aquifers in Dhemaji will have a different kind of vulnerability, given that in the case of overexploitation, revival through recharge will be a herculean task, again due to its high storage capacity, requiring large quantities of water to bring it back to some semblance of equilibrium. At the same time, alluvial aquifers are vulnerable to water quality challenges even before visible overexploitation sets in. Further, the nature of groundwater competition will be quite different across these two aquifer settings (Kulkarni and Vijay Shankar, 2014; Kulkarni and Patil, 2017), and problems may emerge around groundwater quality than around groundwater quantities.

Aquifers are finite units with measurable boundaries that define their limits. The limits are also defined by a factor called "storativity" or "specific yield (for the shallower, unconfined aquifers", defining the capacity of the aquifer to be able to store or release that volume of water as a proportion to the total volume of aquifer material). When considering the six different formations in which the 112 districts that are defined as irrigation deprived and groundwater surplus, the following table provides a broad perspective of the storativity values of typical aquifers in each setting.

Table 3.2 and Figure 3.12 show that the ranges of storativity is between 0.1% and 22% for the 112 districts. These are broad values and there is likely to be greater variation at local (aquifer) scales than a compressed range. Therefore, the well yields and seasonality of wells are also going to vary accordingly. Any irrigation scheme designed for these districts needs to consider the hydrogeological setting and the aquifer characteristics for that setting in order to achieve sustainability, equity, efficiency of pumping systems and water usage. While aquifer sustainability would depend upon

Table 3.2 Aquifer Settings and Typical Storativity Values for the 112 Districts

Aquifer setting/ formation	*States*	*Storativity (percentage of rock material that can yield water to a well or spring)*	*Source of the values*
Alluvial (unconsolidated systems)	Maharashtra, Gujarat, Odisha, Bihar, Assam	4–22%	CGWB, 2014
Mountain systems	Assam	0.1–1%	ACWADAM
Volcanic systems	Maharashtra, Gujarat, Karnataka, Telangana, Madhya Pradesh, Jharkhand	0.2–4%	CGWB, 2014
Sedimentary systems	Andhra Pradesh, Gujarat, Madhya Pradesh, Chhattisgarh, Odisha, Uttar Pradesh	1–15%	CGWB, 2014
Crystalline systems	Maharashtra, Gujarat, Odisha, Bihar, Andhra Pradesh, Telangana, Karnataka, Chhattisgarh, Jharkhand, Madhya Pradesh, West Bengal	0.2–4%	CGWB, 2014

storativity, the yields of wells used in irrigation are a function of aquifer transmissivity. Understanding aquifer transmissivity is particularly important when designing pumping from the aquifer. In other words, designing pumping systems must be based on aquifer transmissivity along with the demand for cropping systems in many of these areas. Creating access to groundwater by drilling wells is not as simple as it seems. Representative values for transmissivity are given in Table 3.3 and Figure 3.13.

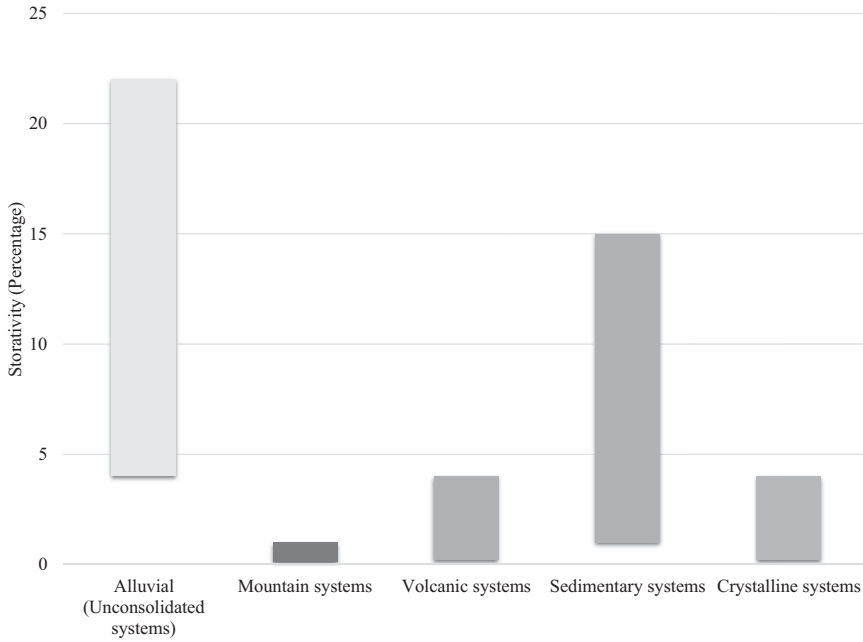

Figure 3.12 Representation of the storativity values provided in Table 3.2

Table 3.3 Aquifer Settings and Range of Transmissivity Values for the 112 Districts

Aquifer setting/ formation	*States*	*Transmissivity (m^2/day)*	*Source of values*
Alluvial (unconsolidated systems)	Maharashtra, Gujarat, Odisha, Bihar, Assam	200–6,000	CGWB, 2012
Mountain systems	Assam	5–500	CGWB, 2012
Volcanic systems	Maharashtra, Gujarat, Karnataka, Telangana, Madhya Pradesh, Jharkhand	5–740	CGWB, 2012
Sedimentary systems	Andhra Pradesh, Gujarat, Madhya Pradesh, Chhattisgarh, Odisha, Uttar Pradesh	5–6,000	CGWB, 2012
Crystalline systems	Maharashtra, Gujarat, Odisha, Bihar, Andhra Pradesh, Telangana, Karnataka, Chhattisgarh, Jharkhand, Madhya Pradesh, West Bengal	5–200	CGWB, 2012

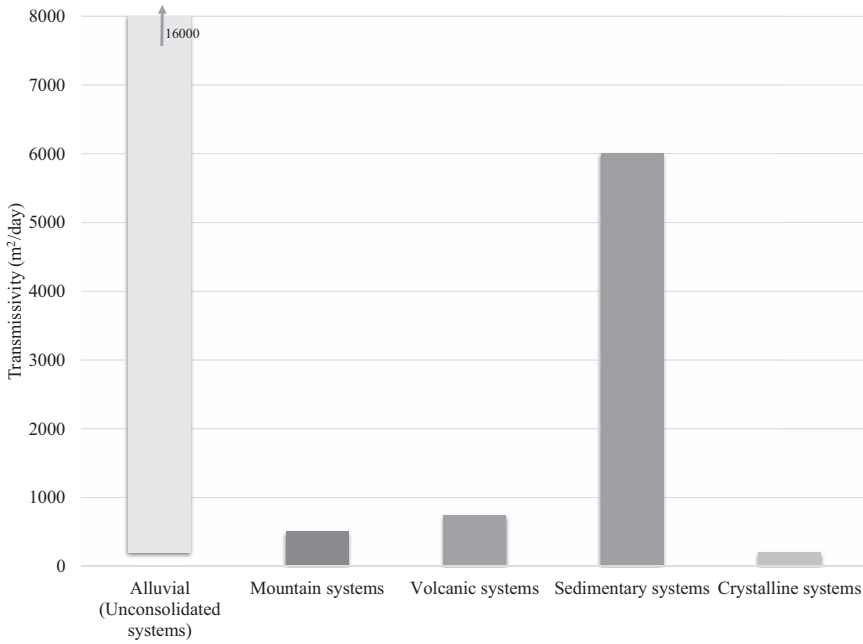

Figure 3.13 Representation of the transmissivity values provided in Table 3.3

Both storativity and transmissivity values offer large variation within aquifer settings and between different formations. Given this variation, the way wells and aquifers respond to pumping will be quite variable. For example a well in an alluvial aquifer may show only a small drawdown (drop in well water-level on pumping) despite a very high pumping rate (15–20 hp pumping sets with discharge rates equal to or greater than 1000 lpm) even when pumping for longer durations. On the other hand, a well in a hard rock aquifer – such as in the volcanic or crystalline systems – may show large drawdowns, even running dry, after just four to five hours of pumping at 300–500 lpm (3–5 hp pumps). The recovery of water levels in wells also depends on aquifer transmissivity. Wells in alluvial aquifers will show rapid recovery while those in hard rock aquifers may even take days to recover from a drawdown of as less as 5 metres. From the irrigation perspective, this means that farmers cannot pump again for five days and a pump design for hard rock aquifers must factor in the transmissivity of the aquifer in order to offer regular pumping for irrigation.

To assess and therefore address groundwater issues, understanding aquifers – the framework within which groundwater occurs and moves – is essential. How much and how fast groundwater will move within different aquifer systems depends on their storage capacity and transmission rates. This variability in aquifers is particularly high in the crystalline and volcanic

systems (often referred to as "hard rock" formations) on account of their low primary porosity (Kulkarni, 2005; COMMAN, 2005) and heterogeneity (Kulkarni et al., 2000).

The Case of Solar Pumps and Pumping Aquifers With Diverse Properties

The addition of 1.5 million new irrigation wells would imply more than 13,000 wells in each district. The consequence of such large-scale groundwater sources development across a wide-ranging aquifer typology will manifest in different ways given the diversity in aquifer characteristics. If a 3.5–5 kW_p solar pump is installed on each well, a discharge of 3,50,000–5,00,000 litres is expected at a head of about 10 metres from a DC motor fitted on a shallow dugwell on clear sunny days with average daily solar radiation conditions of 7.15 KWh/m^2 on the surface of a PV array (Ministry of New and Renewable Energy, 2016 and Jawaharlal National Solar Mission, 2015–16). A matrix showing kWp and hours of pumping for a constant head of 10 metres reveals a diverse set of discharge values (Table 3.4).

The values in Table 3.4 consider that all aquifers will yield the same amount of water and the only variables are the pump capacity, head and time. As a matter of fact, aquifer properties will also determine the rate at which aquifers will provide water as demonstrated in the earlier sections. The transmissivity of an aquifer is manifest in the form of the specific capacity of each well, a measure of the volume of water that a well can yield in unit time for a unit drawdown (drop in water level on pumping). Specific capacity, therefore, reflects the rate of flow of water from the aquifer to the well. Hence, specific capacity is a measure of the yield of a well, which in simple terms, is a function of the transmissivity of the aquifer at the well. Well yields, therefore, will show a significant variation across different aquifers.

Further, considering a range of typical values of specific capacity of wells in four different aquifer settings, to obtain 87,500 litres of water, from a 3.5 kWp solar pump, wells in the crystalline and volcanic systems need to be pumped for longer hours than those in alluvial systems (Table 3.5).

Table 3.4 Expected Water Output (Litres) at 10 m Head From Solar Pumps of Different Watt Peaks

kWp	*Hours of pumping*				
	1 hr	*3 hrs*	*6 hrs*	*10 hrs*	*24 hrs*
3.5	14,583	43,750	87,500	1,45,833	3,50,000
4	16,666	50,000	1,00,000	1,66,667	4,00,000
5	20,833	62,500	1,25,000	2,08,333	5,00,000

Table 3.5 Range of Typical Specific Capacity Values of Wells in Different Aquifer Systems and the Corresponding Time Required for Pumping to Obtain 87,000 Litres of Water

Aquifer system	*Typical range of specific capacity of wells (lpm/m)*	*No. of pumping hours to obtain 87,500 litres of water*
Crystalline	3–200	7–486
Volcanic	2–500	3–729
Alluvial	200	7
Sedimentary	30–460	3–49

Table 3.6 Range of Drawdowns for Each Aquifer Setting for the Pumping Rate of 185 lpm

Aquifer system	*Typical specific capacity of wells (lpm/m)*	*Drawdown (m) in well at the end of 1 hour for a pump discharge of 185 lpm*	*Typical well depths (m)*	*Pumping hours required for the specific capacity ranges to obtain 10,000 m^3 water in 180 days*
Crystalline	3–200	1.0–61	10	0.2–10
Volcanic	2–500	0.3–92	10	0.1–33
Alluvial	200	1.0	15	15
Sedimentary	30–460	0.5–6.0	10	2–20

However, it is necessary to note that within an aquifer typology, there is large variation in the specific capacities (yields) of the wells. Thus, occasionally, even in a volcanic system in which the specific capacity of wells is close to 500 lpm/m, 87,500 litres of water can be obtained in only three hours. However, such specific capacities are rare in the volcanic aquifers of India, which show a wide-ranging set of specific capacities even for wells tapping a single aquifer, representing widely varying transmissivity in different portions of the aquifer (Deolankar, 1980; Kulkarni et al., 2000; Kulkarni and Vijay Shankar, 2014).

The proposition that wells with 10,000 m^3 annual yields will not lead to any overexploitation (Shah et al., 2016) may seem a reasonable estimate at first glance. However, one needs to look at this index from the angle of matching efficiencies of water demand and efficiencies derived from aquifer contribution to wells. Given the diversity in aquifer properties, especially transmissivity, well yields will differ significantly, requiring differential rates of pumping. A simple model assuming six hours of pumping for 180 days of pumping every year, is presented for illustration here. The pumping rate required to obtain 10000 m^3 in a year is 185 lpm. Table 3.6 shows the range of drawdowns for each aquifer setting for the pumping rate of 185 lpm. It is evident from Table 3.6 that unless the specific capacities for all the wells are

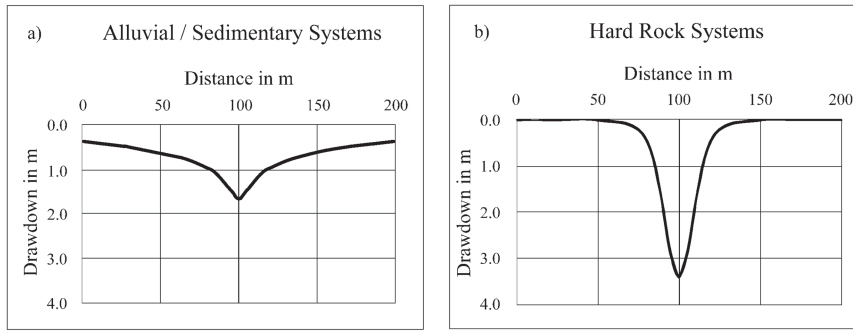

Figure 3.14 Simulation of pumping drawdowns in two contrasting aquifer systems – (a) alluvial/sedimentary systems and (b) hard rock systems. The simple simulation uses a pumping time of 10 hours and a pump discharge rate of 500 m^3/day

on the higher side in the consolidated rock aquifers – crystalline, volcanic, and even sedimentary systems – it is difficult to obtain the required amount of water in a year, with many wells being pumped at rates greater than what the aquifer transmissivity permits.

Figure 3.14 shows the comparative responses of two wells, one tapping a high-transmissivity alluvial aquifer while the second tapping a low-transmissivity hard-rock aquifer with similar pumping schedules. Variable yields result in variable drawdowns in different aquifer systems. Extensive pumping of aquifers with such variable yields often leads to implicit competition between users, where intensification of yields is often achieved through a variety of mechanisms by farmers – deeper drilling, horizontal and vertical drilling inside dugwells etc. (Kulkarni and Patil, 2017).

Moreover, when wells begin to yield lesser, the tendency is to drill deeper and install pumps that have greater lifts, often ignoring the match between pump discharge and aquifer contribution, an aspect that has been described in detail for a basalt aquifer (Kulkarni and Deolankar, 1995). In order to obtain more water, farmers will tend to go deeper or install higher capacity pumps despite the 10,000 m^3 water yield per year. This is almost imitating the "anarchy" that Shah (2009) described in India's groundwater boom particularly in areas underlain by hard-rock aquifers. Hence, a more nuanced strategy for pumping rates and cropping pattern becomes necessary to effectively implement the concept of "har-khet-ko-paani".

Case Studies

We take the example of three cases, which are representative of the 112 districts from across the country to demonstrate the need for disaggregation and decentralization of approaches for promoting agricultural livelihoods.

This is particularly necessary keeping in mind questions of equity in the pursuit of irrigation development. The trajectories of such development have meant serious implications, especially for the tribal populations of India's rural hinterland.

Case I: Bagli Tehsil of Dewas District, Madhya Pradesh

This case study embodies the trajectory of groundwater development that could potentially emerge in the 112 tribal-dominated districts. Dewas district is not a part of the 112 districts discussed in this chapter. However, the case has clear implications in terms of the historical trajectory of groundwater development across two regions, one dominated by non-tribal and the other by tribal populations.

Most CGWB assessments have classified Dewas district as being semi-critical or critical. Two other factors that could have led to the exclusion of Dewas district from the 112 districts are the access to irrigation and that tribal population forms only 17.4% of the total population. However, Bagli tehsil is dominantly tribal with 52% of the population being tribal. The tehsil shows the presence of five of the hydrogeological typologies and therefore a wide variety of aquifer characteristics. It is perhaps one of the most hydrogeological diverse regions of India. Rainfall also varies largely across the tehsil. Based on a collaborative action research between ACWADAM[1] and SPS,[2] we present a timeline of groundwater development in this region.

Bagli tehsil can be divided into two broad physiographic zones – the Malwa plateau and the Narmada valley. The Malwa plateau in Dewas district is dominated by non-tribal communities while the valley regions are constituted of mainly tribal villages. In the early 1970s, the Malwa plateau region in the tehsil was largely covered by rainfed millet and pulses, with unirrigated wheat grown in the rabi season. With the advent of borewells in the 1980s, this region transformed its agricultural practices with the introduction of irrigated wheat and chickpea and eventually a system of soybean combined with wheat entirely backed by borewell irrigation. While this massive boost in irrigation (a ninefold increase in irrigated area over the period 1970–2010 with 85% of the irrigation based on groundwater) did improve productivities and improved the livelihoods of farmers, the stress on the limited groundwater availability began to manifest in the form of groundwater depletion (Vijayshankar and Kulkarni, 2019). Eventually, in the period 1990–2010, farmers in the Malwa plateau region drilled deeper to an extent where the wells began tapping the deeper aquifers in sedimentary formations (the formations occur at or near the surface in the Narmada valley), which are the mainstay for livelihoods and drinking water of the tribal farmers in the valley regions.

While the plateau region was rapidly growing in terms of irrigation development (deeper and deeper borewells became the norm for gaining access to groundwater irrigation), including the development of groundwater transfers and markets, the valley region showed a "lag" in groundwater development.

A lot of the groundwater development in the valley region has followed the same patterns of the Malwa plateau farmers, but by a lag of more than a decade. However, the valley-based tribal farmers could access groundwater on the back of a successful implementation of programmes like watershed management and the MGNREGS. The tribal farmers also followed the irrigated cotton and wheat pattern once they gained access to wells and electricity.

Hydrogeologically, the plateau region comprises basalts while the valley regions show a wide variety of aquifer settings. The storage capacities of aquifers in the valley region are quite variable, and therefore, the impacts of groundwater exploitation are quite varied too. Some parts demonstrate sustainable yields for cotton and wheat while farmers in other regions have invested massive sums for digging and drilling multiple wells and/or deeper wells to offset the natural inequity in groundwater availability in even neighbouring villages. On the one hand, groundwater access has improved tribal livelihoods reducing poverty and migration while on the other, the unchecked groundwater exploitation has led to a drinking water scarcity in many villages as the iniquitous access to groundwater continued unabated. The heterogeneity and variability in aquifer flows and stocks are evident even at a micro-scale – as part of a single local, shallow aquifer in

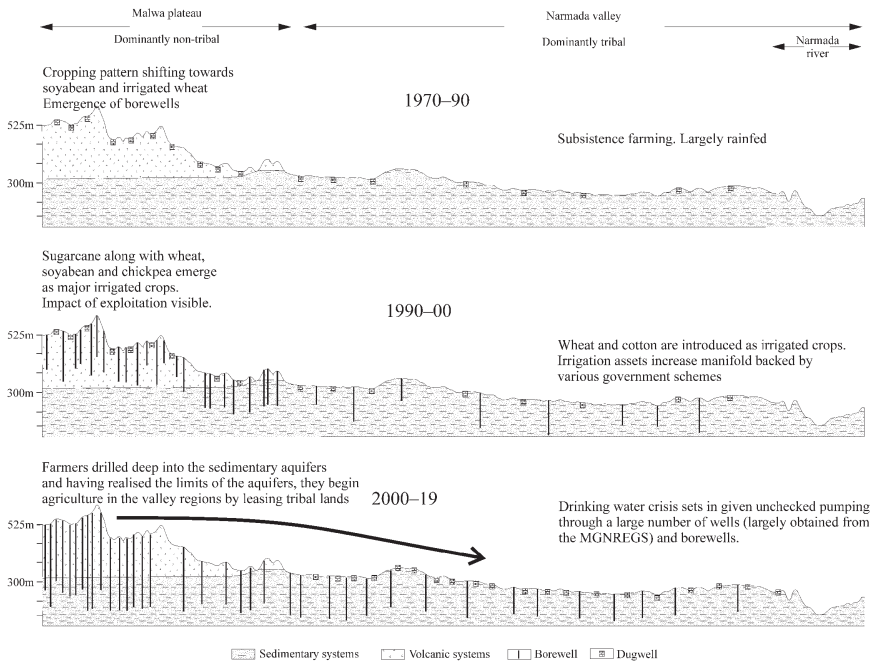

Figure 3.15 Conceptual depiction of the timeline of groundwater development in Bagli tehsil

Source: (after Vijayshankar and Kulkarni, 2019).

a watershed – leading to variable well yields (Kulkarni et al., 2004). At the same time, the non-tribal farmers from the plateau have realized the limits of drilling further deeper into the valley aquifers (exposed as deep aquifers in borewells drilled on the plateau) and have begun a "reverse migration" of sorts. These relatively affluent farmers have begun to lease lands from the tribal farmers in the valley regions. The land lease provides unfettered access to the groundwater resource on such land and the capital to drill further and pump at greater rates. The cropping pattern on such leased lands is now in the form of high-water requirement cash crops such as onion and garlic. The tribal farmers are assured incomes from such transactions, although it is beyond the scope of this chapter to delve into the dynamics of capital, finance and economics between these two sets of farmers. One conjectural inference from this arrangement is the trade-off between the drinking water requirements of tribal farmers and the irrigation pumping for cash crops by non-tribal farmers. While more information is needed to draw sharp conclusions in this regard, the complex and competitive access to groundwater in a depleting aquifer setting can no longer be ignored.

Case II: Ramgarh (Erstwhile Hazaribagh) District of Jharkhand, Purulia District of West Bengal

Both Hazaribagh and Purulia are included in the 112 districts given that groundwater is assessed as "safe" – according to various CGWB assessments – and that tribal communities dominate both the districts. We present data from one village each in these two districts. A broad district-level assessment of this entire region, which comprises entire Jharkhand, southern Bihar, Chhattisgarh, Odisha, eastern Madhya Pradesh and parts of western West Bengal has led to a perception of groundwater being an untapped reserve. Hard rocks, with very limited and often highly variable, aquifer storage capacities, dominate this entire region. This implies that aquifer systems can store only a fraction of the annual rainfall despite the high rainfall in this region (of the order 800–1000 mm). The case presented here demonstrates the need for disaggregation from the district level to aquifer level before planning any groundwater-based schemes (Patil et al., 2015).

Churinsara village in Purulia district is a typical tribal village in eastern India. Hard rocks – ancient rocks of igneous and metamorphic origins – underlie this region. The aquifer systems are present in the thick weathered zones of these rocks, exhibiting moderate storage capacities. Even then, the aquifers can store only a maximum of 100–150 mm equivalent of groundwater, which means that even in the worst rainfall years, the aquifers usually fill up. The streams in the village are perennial (base flows) and dugwells have water throughout the year, and thus there is no drinking water crisis in the village. Groundwater-based irrigation is limited despite the number of wells increasing from four to nine in a span of three years backed by government and civil society programmes. The irrigation potential is unused given

the lack of assured pumping systems and markets being at long distances. Farmers grow subsistence paddy and vegetables, which does not provide enough food for the entire year and they must depend on the public distribution system for 3–4 months every year for all the food needs.

Bhubhui village in Ramgarh district on the other hand is a contrasting case. While the rainfall is lower than Churinsara, the aquifers possess higher storage capacities despite being formed from a similar system of weathered hard rocks. At the same time, given its proximity to urban centres, this village has been able to tap markets for vegetables. There are over a 100 dugwells in this village, which have proliferated during the last 3–4 years, all under MGNREGS. Each farmer owns multiple wells in each land parcel across the topography. While there is no drinking water crisis yet, exploitation has set in and can be observed in the form of reduced base flows – streams run dry in the winter season now even during above-average rainfall years. The same streams were known to be perennial just a decade ago and the only change that has occurred is the boost in irrigation. Summer water levels in wells are also reported to be deeper than what they were a decade ago (Patil et al., 2015).

As stated earlier, both Churinsara and Bhubhui are tribal-dominant villages. However, access to resources in the form of government schemes, availability of power and access to markets has enabled one village to have moved forward rather rapidly as compared to another. The improvement in Bhubhui has been entirely backed by groundwater as there are no other sources of water supply such as surface water schemes. Bhubhui's trajectory is the development approach being promoted across eastern India. However, if the current trend of unchecked groundwater-based irrigation in Bhubhui continues, it will not be long before exploitation in the shallow aquifer leads to drilling of borewells thus affecting drinking water and the overall economy in the village. Competition over limited stocks of water will ensue, leading to inequities even in a homogeneous tribal community. The limited number of borewells and handpumps in the village already show a presence of iron. The advent of borewells would disturb the current equity in access to groundwater with the more affluent being able to afford to drill multiple and deeper wells and therefore pump the highest amount of groundwater, although this too will run out quickly. Also, given the nature of aquifer systems, deeper aquifers would provide much less water per unit of aquifer area and at the same time the recharge cycles would be longer and complex thus requiring intensive efforts of augmentation, including the clamour for importing exogenous water.

Case III: The Flood Plains of North Bihar

This case is presented here as it is applicable not just to the districts in Bihar, but also to the districts in the Brahmaputra valley in Assam. The flood plains in Bihar have also been assessed as "safe" by the CGWB. Understanding groundwater in this region is often viewed as a futile exercise, given

the extremely high storage and availability of groundwater in the alluvial aquifer systems. However, a finer assessment at the village level in various districts of Bihar's alluvial flood plains shows that there is acute drinking water crisis even in these "safe" districts where groundwater levels are a few metres below the ground surface. This scarcity which is often missing in various assessments is in the form of groundwater quality issues, namely in the form of iron and arsenic (Kulkarni et al., 2009; MPA, 2011). It is now well established that iron and arsenic are not limited to the narrow tract near the Ganges and is a much larger problem across the flood plains in Uttar Pradesh, Bihar, West Bengal and Assam. Fluoride is also an emerging contaminant, although its studies are limited to Assam and a few sporadic locations from north Bihar (FKAN). The presence of arsenic in the food chain owing to irrigation from contaminated sources has also been well documented (Banerjee et al., 2013).

Given the serious water quality issues and their irreversible impact on human health, it becomes important to design irrigation schemes by factoring in the relationship between aquifer settings and groundwater quality, especially major contaminants like arsenic and iron. Studies have clearly shown that dugwells tapping shallow aquifers show the presence of biological contamination but not of iron, arsenic (Patil et al., 2011; Patil et al., 2019) and fluoride. The primary response of the state, scientific community and even the civil society to the issue of arsenic has been the promotion of deeper wells, which in the short term do not show the presence of groundwater contaminants. There are a few key challenges to this argument. These are listed here.

- Only the very affluent and the state can afford deep wells which, given the specialized construction required in the alluvial setting can cost anything between ₹1 and ₹2 million for a depth of 100 metres.
- The studies that have argued for deeper aquifers being safer have done so considering that pumping in these deeper aquifers be limited to community-level drinking water schemes. The same studies demonstrate that large-scale irrigation pumping can lead to degradation of these aquifers with the onset of arsenic contamination (Shamsudduha et al., 2018; Michael et al., 2008).
- Even if the argument of deeper aquifers providing safe water was held true, Fendorf et al., 2010 have argued against the use of these for irrigation to preserve these aquifers for drinking water.
- Exploitation from aquifers usually leads to the appearance of contaminants even in initially safe aquifers because of increased concentrations and/or leakage from contaminated aquifers from above which happens given a drop in the pressure in the deeper aquifers. Both these occur owing to large-scale unchecked pumping.
- The lack of granular data through representative and regular monitoring of groundwater levels and quality in these regions means that the

spatial heterogeneity of alluvial aquifers is not always captured, and the status of water quality is not checked seasonally over the long term. The impacts of atomistic pumping, changes in groundwater flow regimes are therefore not assessed post the construction of deep tubewells.

The extreme poverty in this region spanning the flood plains in Bihar and Assam requires schemes for improving livelihoods. Groundwater access can form an important enabling factor for poverty alleviation and livelihood improvement. However, there are two aspects of typical alluvial aquifers which need consideration before launching large-scale groundwater irrigation programmes:

- The water quality aspect needs to be addressed through investigations at a disaggregated scale. District- and block-level assessments are not capable of capturing the variability and heterogeneity of alluvial aquifers.
- In the short term, given the exponentially higher storage capacities of alluvial aquifers as compared to hard rocks, these are less vulnerable to impacts of overexploitation. However, in the long term (often decades), as observed in Punjab and Haryana, the exploitation of alluvial aquifers has become almost irreversible even through very large public recharge schemes. In the absence of major policy shifts, large-scale restoration of these aquifers remains a mirage.

Case IV: Pune District of Maharashtra

Muthalne village is located in the Western Ghats of Pune district, Maharashtra. This is a tribal-dominated village with high poverty and migration. The tribal population of Muthalne practices subsistence farming, with a majority of farmers growing paddy and pulses. Despite the high rainfall in the region, it experiences drinking water scarcity. There were only 19 wells in the village during the study period (ACWADAM, 2013).

In this region of Pune district, tribal populations occupy the higher uplands of the Western Ghats while non-tribals dominate the valley plains. A major component of western Maharashtra's irrigation infrastructure is situated just off the escarpments and highlands of the Western Ghats, where the southeasterly sloping plateau commences. This means that many tribal populations dwell in the catchments of large dams while non-tribal populations are in the command regions of these dams. The physiographic location bears a clear dichotomy of water access around tribal and non-tribal farming communities. This peculiar situation is shown in Figure 3.16.

The aquifer setting further compounds the marginalization of tribals, primarily due to limited water access. Volcanic aquifers (basalts in this case) exhibit very low storages and high heterogeneity in this part of Pune district.

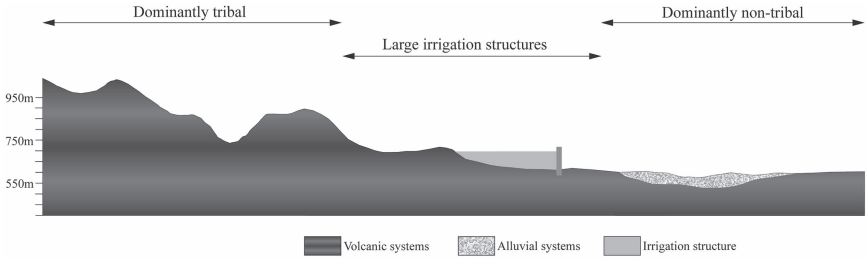

Figure 3.16 Conceptual depiction of the situation described in Case IV

The village is located higher up in the Western Ghats, where aquifer spreads and thicknesses are also relatively low. Similarly, the topographic gradient is high and therefore natural recharge is low owing to smaller exposed aquifer surfaces and rapid surface run-off. Such natural inequities cannot be addressed only through engineering and technological interventions. The aquifers in this region have formed over 65 million years and their properties cannot be changed over a meaningful area in any practical time frame. The storage capacities are below an equivalent of 100 millimetres, which even when fully saturated cannot provide enough water for all villagers to cultivate crops such as paddy and vegetables beyond the monsoon period, without interventions on reducing water usage.

Given these naturally limiting factors, simply providing a large number of wells with any kind of pumping system will not lead to improved productivities and livelihoods even if every farmer has an asset in the form of a well. Access to groundwater must be coupled with a strong water balance-based crop water budgeting in order to secure drinking water and ensure sustainability of livelihoods. Failing this, the timeframe for such villages to "slip back" to being rainfed and experience a worsened drinking water crisis will emerge in a much shorter time frame than experienced in the north-western Indian states of Punjab and Haryana.

It is interesting to note here the contrast between two tribal villages. Muthalne in this case and Churinsara from Purulia district (Case II) are very similar in terms of the demographics, socio-economic conditions, topography and rainfall. One major difference between these two villages is the hydrogeology of the region. Volcanic rocks with very low storage capacities and high heterogeneity underlie Muthalne, while crystalline hard rocks underlie Churinsara with thick weathered zones leading to moderate storages and relatively homogenous aquifer properties. In Churinsara, nine wells are considered to be a small number and yet there is no drinking water crisis while in Muthalne, even 19 are considered a limited number. Muthalne experienced a severe drinking water crisis before interventions, the main

component of which was to create local sources and conserve groundwater for ensuring domestic water security throughout the year. Clearly, access and availability of groundwater are factors governed not just by the number of wells and pumping systems but also by the aquifer settings underlying the villages.

Discussion

Both numbers and depths of wells have increased exponentially during the last 3–4 decades. Density of wells indicates competition and interference between sources while various depths of access indicate interference between aquifers.

The growth of global groundwater use labelled aptly as the silent revolution (Llamas and Martinez-Santos, 2006) was especially relevant to bringing water to arid and semi-arid regions making it of great significance to world water policy, especially in improving food security conditions. While policies and programmes under India's quest for food security were focusing on surface water irrigation through dams and canals, millions of Indian farmers crafted out groundwater irrigation through their own initiatives and investments, whether support from public programmes was forthcoming or not. While shallow dugwells have been the mainstay of India's groundwater access for many centuries, the share of tubewells and borewells is currently more than 50% of the total groundwater irrigation.

Crises surrounding groundwater resources have rendered aquifers overexploited with fallouts in the form of acute scarcities and serious water quality problems alongside the depletion in the base flows of rivers. The overarching problem of droughts has exacerbated the water stress in many parts of the country. Drought problems in India tend to be addressed through a variety of conservation projects based on the concept of watershed development. Artificial recharge forms a significant component of many such projects, notwithstanding the fact that the full repercussions of where, when and in what way artificial recharge is most effective. On the other hand, there is a growing perception that the "safe" units of groundwater resources assessment have not realized their potential for groundwater irrigation and are there to be "developed" through aggressive sourcing and pumping of groundwater.

The argument for aggressive groundwater-based irrigation for 112 districts across the CITB emerges from CGWB's data sets. The assessment scales in these data sets across the 112 districts are variable and even then, the variability within these 112 districts is clearly visible. The block-level data shows that many of the blocks are not safe and some are even salinity affected. Water quality parameters such as arsenic and fluoride are not considered in the CGWB assessment. Hence, a careful strategy for groundwater quality mitigation is missing from the recommendations of

groundwater development. Many of these districts are known to be fluoride and arsenic affected.

The need for higher granularity data for planning groundwater use is increasingly felt because of the visible disparity between the district- and block-level data. Moreover, promotion of groundwater irrigation may increase competition over the resource and further deepen the crises surrounding groundwater resources in the region. When multiple data sets on agriculture and minor irrigation are used, variability within the 112 districts becomes apparent, with the western region showing higher access to groundwater than the eastern districts. At the same time, the percentage of existing groundwater schemes not functioning due to two primary reasons – drying up of wells or wells with low discharge – is significant. This highlights the need for considering the hydrogeological angle of these 112 districts before formulating big-ticket regional policies. Understanding groundwater dependency, exploitation, sources and the aquifers at the localized levels is quite important in the 112 districts as this region has diversity of aquifer settings. Groundwater availability is not uniform even across each aquifer setting. Even at the regional level, the data sets bring out the variability and the need for disaggregation – the SGD in these 112 districts ranges from less than 10% to more than 90% while share of groundwater irrigation ranges from negligible to almost 100%.

Aquifer properties define the behaviour of wells to pumping and given the contrasting properties of the aquifer systems across the 112 districts, different pumping systems and variable schedules, the actual availability of groundwater will vary. The biggest impact of aquifer properties on the proposed expansion of groundwater irrigation in these 112 districts will be on the actual well yields. In order to achieve the target of 10,000 m^3 per year from each well, the pumping hours will vary between less than an hour to more than 15 hours. In some cases, the pumping rates required to attain the required discharge are well above the rates of groundwater flow that can sustain such pumping discharge. At the same time, certain aquifer settings will show reduced yields over even one seasonal hydrological cycle. Heterogeneity especially in hard-rock aquifers and their tendency of low permeability in some regions will lead to well failures. Competing access between farmers for improving yields and sustainability of wells will eventually lead to the crisis that has emerged in other parts of India – depletion, contamination, poor access to water and a serious threat to drinking water supplies in villages.

While groundwater access will improve the equity in access to irrigation, especially for the small and marginal farmers, the unbridled promotion of irrigation intensification without considering the hydrogeological angle will further alienate the small and marginal farmers. As aquifers eventually dry up, only the large farmers will be able to drill more and deeper wells widening the gap further and causing serious impact on drinking water supplies and lean season river flows.

In conclusion, a nuanced strategy of groundwater management and governance is required for the sensitive regions defined by the CITB. The main components of this strategy should include the following:

1 The sustainability of livelihoods depends upon a balance management of natural resources such as groundwater with sustained agricultural productivity. Embedding the concept of "protective irrigation security" into both watershed development and groundwater management forms a vital component of a comprehensive livelihood security strategy for the region.
2 Distributing small amounts of water to many through a community-based approach that combines the concepts of Participatory Irrigation Management and Participatory Groundwater Management must be prioritized. Prioritizing in sequential order, domestic water security, kharif water security, rabi water management and summer irrigation can be clearly defined. Kharif water security holds great potential given that the smallest demand for water can be taken to many farmers and farmlands to achieve improved productivity at scale through conjunctive use of rainfall, surface water and groundwater resources.
3 Groundwater management in watershed development projects requires a solid *scientific foundation* on which the modalities of *groundwater use* in the area can be planned and implemented (this, currently is largely outside the ambit of any watershed development programme).
4 Science-based participation leading to community-level decisions helps achieve the goal of managing common pool resources such as groundwater. Decentralizing governance of groundwater through a participatory combination of science leading to community decisions is the way forward. While it is too premature to state, it may also be useful to explore the economic returns to tribal farmers through sustained support systems of procurement and pricing, especially for high-value, water conservative agriculture.

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Notes

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2 Samaj Pragati Sahayog, Bagli, Dewas.

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4 Urban Underclasses and Industrial Serfs of Transforming Tribal Central India

Survival Realities of Footloose Tribal Migrants

Ajay Dandekar, Rahul Ghai and Pramathesh Ambasta

Situating the Discussion

The discussion seeks to bring to focus some key issues pertaining to the survival realities of the labouring poor among tribal populations residing in the eco geographies of the central Indian adivasi region. More specifically, we seek to understand and ask questions about the realities of footloose tribal migrants from blocks and districts of West Bengal, Jharkhand, Orissa, Chattisgarh, Madhya Pradesh, Gujarat and Rajasthan. It attempts to understand the conditions of human deprivation that is the continuing plight of many of these migrants and their families as their destinies oscillate between a persisting and worsening survival context at home and challenges of surviving through dehumanized working routines of casual and bonded labour or aspiring for wage opportunities in a hostile and fast-expanding urban world.

In the recent decades neoliberal policies and the aggressive spread of capitalist relations have sustained two processes – structural transformations in morphology of human settlements and diverse patterns of movement of social classes mostly, though not limited to, lower and marginal communities. The overarching force that orchestrates these processes is the greater penetration and flow of capital in rural interiors and in situ development processes spanning economic growth around large rural villages, small and medium urban settlements. In the central Indian tribal region most of the development processes that have followed from privatization of natural resources, land acquisition and extraction of mineral resources in the forest belts have contributed to the increasing number of other and marginal workers and decline in the number of agricultural workers and cultivators. These regions are reeling under an unprecedented agrarian crisis and have emerged as cheap labour pools for the more developed and urbanized regions of India.

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Tribal people in these regions suffer predominantly from this mass eviction on account of feeble rainfed agriculture and paucity of other options of livelihood and employment. Fragmentation of already small landholdings, loss of land due to acquisition and illegal land alienation by non-tribals are some of the main reasons of dispossession of operational landholdings. The conditions of unsustainability have contributed to environmental degradation, recurrent rather perennial drought conditions, deforestation. Legislations like the PESA and FRA that sought to restore the "historical injustice" of rights on the forests have been poorly implemented on the ground leading to decreasing access to forests. Due to these compulsions, there is a range of distress mobility patterns that is the plight of many tribals in regions of central India. The chief defining features of this are cheap, harsh, and undignified human labour, tied to bondage and servitude through a tight grip of indebtedness. In terms of destinations and duration there is great degree of spatial variations in these patterns of mobility and reasons for migration.

The most common and which accounts for the majority of the tribal labouring poor are differing durations of seasonal movements of circular migration as agricultural worker. These movements are a disparate phenomenon that varies from 4–6 months and may happen once a year or two times a year. Many of these are well-established traditional movements continuing for many past decades. These are interstate journeys to selected irrigated command areas and to "green revolution" areas in northern India. As a response to worsening conditions of acute distress many are forced to migrate as casual wage hunters and footloose labour. The destinations are construction sites (both casual wage hunters and captive labour), brick kilns, rickshaw pullers and skilled masons, plumbers, workers in small-scale units in the more urbanized states of west and south India. For most of these labouring poor there is very little scope for upward mobility as they remain stuck in unskilled, poorly paid, and hazardous jobs for their whole work–life span, acquire no surplus.

Migration streams and flows point to the importance of social networks and prior contacts for originating and stabilizing these. Over time, many of these social networks have morphed into and have been controlled by an elaborate chain of labour contractors that tightens its grips of indebtedness on this cheap labour pool. The contract labour system that is invariably controlled through political nexus and prospers under loose monitoring and regulating state apparatus has helped strengthen these unfair models and practices in the migrant job market. Here, what is of particular significance is that the drudgery of migration is intensified by dehumanizing conditions that accompany such movements, many of which traffic children and women. This human condition that gets produced and reproduced by these mobility patterns is more understood in terms of urban capital spreading its reach down to the interior rural landscapes for evicting communities who are too dispossessed of minimal natural resource access for bare survival. The chief defining features of this are sustenance of survival levels, cheap

and undignified human labour, tied to bondage and servitude through a tight grip of indebtedness.

Here, it needs to be said that some of these mobility patterns and work opportunities like working in saree printing and weaving units, retail shops, as plumbers, skilled masons do bring in their share of remittances. These migrants can acquire skills and climb up in the social and economic world. In such cases, migration to destinations bring more dignified work opportunities and contributes to an aspirational grabbing of opportunities. The social status and economic condition of such migrants are better and contribute to investments for a generational shift towards a better quality of life. But here it would be appropriate to point out that such cases are not many, and aspirational migration has limited relevance.

The discussion seeks to ask some questions regarding the plight of poor tribals on the move in the context of this ongoing transformation of India, as it reconfigures rural and urban societies/spaces, sets in new dynamics and interdependencies between "rural" and "urban". What is required is perhaps the conceptual repositioning of the classical trope of "internal migration" where the paucity of rural countryside and opportunities in urban are considered as bipolar opposites, embedded in the inevitability of industrialization, urbanization and coming of modernity. The recent evidence and experience of migration rather than mobility of people and the diverse spread of urbanization particularly in the last two decades beckons assessing the heuristic and substantial validity of the concept of "internal migration" in understanding survival realities of footloose labouring poor.

It has been observed that as countries develop, the pace of rural to urban migration accelerates drawn by the centrifugal force of large metropolises, and deceleration happens only when the level of urbanization is very high – usually well over 50%. In India, on the other hand, "migration started to decelerate at a time when the urban population was below 25 per cent of total population, and continued to decelerate over three Censuses – 1991, 2001 and 2011" (Sen, 2017). Two plausible explanations could be given for this phenomenon. First, if one was to adopt a more liberal definition of what constitutes "urban", then the ebbing of the voluntary/aspirational as well as distress migration, especially to the big metropolises happens when the required benchmark rate of urbanization is close to the global benchmarks. So, it could be said that we are not outliers to the global trend. We are more urban than we think anyway. And second that migration to big metropolises gave way to both increasing intensity of rural-to-rural migration and mobility cycles of different durations to growing cities and towns, especially those that have witnessed higher growth rates in what has been described as middle urbanization in the decade between 2001 and 2011.

It could be argued that in the recent decade the different pathways of capital and hold of corporate capitalism combined with an urban-centric development vision of state have contributed to the deepening of rural–urban linkages and produce a more continuous diffused spectrum of settlements.

This blurring of boundaries (of resource use and appropriation, governance, and entitlements) between the normative "rural" and "urban" necessitates a perspective more rooted in the ever-expanding rural–urban continuum.

Concerted efforts are required to understanding the conditions of what has been understood as the "source" in "migration" literature. In this regard, it is useful to point out that the category of distress migration must be seen in the context of originating and sustaining as a traditional livelihood diversification activity undertaken during lean agricultural seasons. As it exists today, most migrants would testify it is the most dignified of all the other migrations they have to take. In fact, it gives them food grains and tangibly contributes to food security at the household level. As contrasted to this, the other kind of distress migration to search for non- agricultural work in distant places originated as a response to recurrent drought conditions and prolonged periods of agrarian scarcity. What is alarming is that this long distance movement that cast them into unskilled non-agricultural workers is getting solidified as ghettoized regular streams of nutrition-deprived families in distress to brick kilns and construction industry.[1] It is this different order of reality that questions the analytical and substantial validity of the concept of "distress migration", the classical version of which has its origins in agrarian unproductivity that over time accentuates into an impending crisis.

The rate of urbanization has picked up over the last decades. It has been observed that India is 26% administratively urban, 31% urban by India's Census definition, 47% urban by the 5,000 population criterion and 65% urban by the 2,500 population criterion. Disaggregated at the state level, economically advanced states show more or less higher levels of urbanization. But at the same time, this pattern of Indian urbanization has been spatially diffused. Metropolitanization that solidified during the decades of 1971–91 exists alongside diffused combinations of localized socio-economic opportunities, continuous stretches of built-environments clusters, cottage industries and market towns partially interlinked by developmental corridors (Denis, E. and Kamala Marius-Gnanou 2011a, 2011b). The fact that 13% of the new growth towns of the decade of 2001–11 belong to vicinity of metros shows lessening of centrifugal pulls of the metros in defining urban experience and imagination (Denis, E., Mukhopadhyay, P. and Zerah, M.H. 2012; Bhuvaneswari Raman, Mythri Prasad-Aleyamma, Rémi de Bercegol, Eric Denis, Marie-Hélène Zerah. 2015).

Thus, majority of tribal central India has seen urbanization in what has been referred to as the middle urbanization. For states like Odisha, Jharkhand and Chhattisgarh private acquisition of mineral wealth and mines remains the major impetus to urbanize at moderately lower rates than the national average for urbanization while Madhya Pradesh has seen the fastest growth of middle towns and million plus cities with their growing urban agglomerations. In fact, the urbanization pattern of Jharkhand brings out a startling dimension. Some districts of the state have seen more urbanization than even the highest states and some districts continue to report low

urbanization rate quite like and lower than less urbanized parts of India. The tribal-dominated areas of Gujarat, Maharashtra and Rajasthan are peripheries of regions with highest urbanization rates and have are better integrated with urban networks. But this has been accompanied by the tightening squeeze of distress conditions in the rural interiors. The extreme features of this capital intensification are eviction of communities in distress to serve as pools of cheap labour and plunder of natural resources of forests.

Similarly, instead of falling in the trap of celebrating "opportunities" at destination, the evidence for which is rather slender and at best pertains to a tiny minority. It needs to be remembered that though urbanization acts as a catalyst in economic development, the processes associated with an overwhelming population inflow tends to create added pressure on the existing urban public services and entitlements. The ubiquitous issues that constitute the "right to the city" remain pressing challenges of governance as they keep getting sliding to margins of existence.

The ensuing discussion attempts to make sense of looking at migration by a fuller understanding of both ends of the migration spectrum, that is famished and waning away, left behind rural countryside and as proliferating range of urban settlements and agglomerations. Given this dismal and alarming state of affairs regarding tribal livelihoods understanding the entrenched conditions of impoverishment at their "source" locations becomes important. It must not be lost sight of that in contemporary times these realities are implicated in a strange paradox of life. A misery that the very process of modernization (or civilizing) under the rubric of development has unleashed unto itself. For majority of poor acquiring dignified marketable skills for urban survival is a highly unpredictable option that exacerbates the effects of loss of livelihoods in rural areas because of a slow continuous process of waning away of traditional livelihood safety nets. This process of dispossession is more intense in cases where there has been a rather massive transformation brought about by a rapid displacement of an older system.

Among the processes of rapid rural transformation one of the major ones has been a radical reconfiguration of land and water resources. Not only have erstwhile commonly held natural resources been privatized but have been severely acted upon by the competing claims of infrastructure development and transportation and mechanization related to aiding urbanization. The overall decline of water- and land-based livelihoods (dryland agriculture and pastoralism being the major ones) has happened coterminous with the fragmentation of landholdings both private and common to transform into proto urbanized agro-industrial complexes. These processes have been underwritten by subtle and overt processes of increasing control of private capital over nature that has been at the core of these processes.

In addition to this, the crisis in these tribal interiors is accentuated by tardy implementation and political apathy and governance failure of the MGNREGA scheme especially in the last five years. Here, it needs to

be pointed out that primarily over the last decade the meta processes of resource acquisition and labour appropriation have created such conditions of entrenched exploitation that even the best MGNREGA implementation would only guarantee bare survival. The resource crisis at source is at the same time a crisis of good education, new marketable skills for enterprises, equal access to credit and markets and consolidation of assets.

The sprawling highway networks that tear their way through the eco landscapes, the growth of an indigenous class of exploiters, propped up and in connivance with the big capital has catalysed processes of rapid transformation and urban "development" particularly in nearby towns and cities. At different urban conduits and destinations, these footloose migrants constitute the invisible workforce that moves from villages to cities and gets consumed in brick kilns, factories and construction sites and hotels in cities.

The processes of urbanization have been highly iniquitous. Looked at closely, much of the urban growth has been one of increasing inequalities and widening disparities between social classes. The labouring poor are sustained as tethered to destinies of subhuman existence or being presented with the imperative of finding new destinations. They are footloose but tied to chains of servitude and bondage to being casual unskilled workers and form the urban underclasses populating the volatile underbellies of urban spaces. Capitalism and modernity that it brings forth in making the transition from an agrarian to an industrial society condemn the labouring poor to a kind of industrial serfdom.

The discussion is based on desk research, fieldwork in selected locations complemented by experiences shared by CSOs and activists working in these regions.

Understanding Internal Migration and Rural Urban Dynamics

This section presents a brief discussion of the major arguments about theorizing rural urban migration. The discussion on the relation between development and migration has ranged from positions of optimism regarding the relation and in fact necessity of migration for furthering development in the 1950s and 1960s to pessimism espoused by neo-Marxist underscoring the exclusionary experience of urbanization, diminishing of safety nets and setting in of conditions of informality in the 1970s and 1980s, to a more wide variety of views that account for multiple experiences in consonance with the changing realities of urbanization and rural transformation in the decades following the 1990s. It is noteworthy to observe that these arguments have their points of validity embedded as they are in different temporalities of modernization and theories of capitalism, development theory and change.

Studies indicate that migrants within India are a large number in absolute terms. As per the Census 2001, there were 31.4 crore migrants defined based on last residence.[2] Taking about 9.8 crore migrants between 1991

and 2001, it was observed that about half of this migration is from rural to rural. In recent years, migration from rural areas has once again been at the centre of policy debate.

Labour migration is seen as a necessary corollary of and condition for economic growth. Government policies which attempt to stem this migration are considered flawed in design, creating "distortions" in a market economy. Several arguments are cited for this. The classic exposition of this mechanism was offered by Lewis in his work on capitalist production in the context of unlimited supplies of labour.[3] Given high population and a constraint on supply of natural resources, marginal productivity of labour in the primary sector (agriculture) is zero, leading to surplus labour in the sector,[4] working at whatever subsistence wages it is possible for it to earn. The urban, capitalist sector is the growth pole engaged in capital accumulation and needs labour to sustain its growth impulse. This labour is supplied by the farm sector via migration. Since marginal productivity of labour in the farm sector is zero, this excess or underemployed labour in the farm sector can be removed from farm-related work without it being adversely affected. The excess labour migrates to urban areas and is employed in the capitalist sector at subsistence wages. Since capital accumulation happens faster than additions to the population or labour force, the process goes on until the workforce barrier is reached, that is the excess labour in the farm sector is absorbed. After this wages in the capitalist sector are forced upwards. Since accumulation is typically associated with a higher share of profits in national income (only capitalists save, with working-class and middle-class savings being negligible), the process of migration is seen as necessary to make this accumulation possible. Thus, unlimited labour supply in the primary sector of the economy plays a critical role in capital accumulation.

Although capital accumulation in agriculture is not ruled out by the model, the focus of the discussion is largely on capital accumulation outside of agriculture. The model also focusses more on long-term migration rather what is known as circular or seasonal migration. The Lewis model, seeking to explain how capital accumulation may take place given certain conditions, has attained a kind of normative status in some economic writing, in that it is drawn upon to make the case for migration as necessary for economic growth. A corollary of this is that policies are called for which disincentivize participation in agriculture, directly or indirectly and incentivize the industrial and service sectors.

Thus, the World Bank has suggested that migration is necessary and the resulting remittances are good for economic growth, and policies which arrest or decelerate this migration from rural to urban areas are acting against growth (World Bank, 2009). Yet, other studies warn against seeing rural migrants as passive victims of circumstances and seek to place them as active partners in the process who have agency (de Haan, 2000, 2011). They further point out that understanding migration as a monolithic phenomenon rather than a multi-layered one is a mistake leading to erroneous "one size fits all" type of policy correctives.

Solinski (2012) looks at migration as an option exercised by aspirational migrants who may not want to stay in rural areas, since urban areas, apart from offering higher incomes also offer greater personal freedom from restrictive social mores. Given this, according to him, a policy focus on reducing migration is misplaced. Deshingkar (2006) finds evidence of migrant remittance from Bihari migrants increasing the living standards of families. In fact, households may also proactively plan that certain family members migrate at some point in order to create better avenues for the whole family. Deshingkar and Start (2003) conclude that migration is a coping strategy which needs to be supported downstream rather than attempting to curb or reduce it, since strategies for improving farm productivity at the point of origin are going to take inordinately long to create the desired impact. Similarly, Binswanger et al. (1985) also point out that migration is part of a coping strategy on the part of migrant households rather than simply a response to disasters, droughts and the like. The term coping here implies that migration is part of a livelihood plan for poor households, which is well worked out.

Adding to this discourse are recent discussions on "agrarian distress", in the context of the debate on the land acquisition ordinance. A view often expressed in this context is that given the agrarian distress, it is neither in the best interests of the poor to remain in the villages nor is it something that the poor really want to do. Therefore, rather than devise strategies which keep people in agriculture, there is a need to focus on the non-farm sector for absorption of those facing the brunt of agrarian distress. In this, land acquisition is a help.

In contrast to this relatively newer understanding of rural to urban migration is the work of Jan Breman who sees migration as determined by structural factors in the countryside, which are the cause of acute poverty and exploitation, which in turn force the poor to flee the countryside and live in urban slums. This narrative draws on analyses of agrarian backwardness and interlocked modes of exploitation (Bharadwaj, 1985; Bhaduri, 2006), which is at the root of acute poverty amongst a large part of the rural population. Such an understanding is seen by critics to be too deterministic and hence not quite correct.

The starting point of this chapter is a discomfort with simple characterizations of migration as either a coping strategy or as aspirational in nature. While the need for a nuanced understanding of migration is indeed required, it is our view that the bulk of such discussions actually misses the point.

First, arguments that migration is aspirational in nature rather than distress induced beg the question as to why it is not trivial to say this. If migrants are indeed migrating because of aspirations, there is neither any legal framework which can stop them from doing so nor can any serious analysis raise questions about such migration. Nor can any objection have much meaning. Indeed, aspirational migration has been a phenomenon which has been prevalent for some time, including migration to other countries.[5] In this

sense, the argument that different types of migration need to be seen differently and hence treated differently is also trivial. For, the focus of the so-called structuralist analysis has in fact been on distress-induced migration. Those arguing against this view may be seen to be equally guilty of clubbing together too many different phenomena under one omnibus characterization, even though, overtly they seem to be doing the opposite.[6]

Second, just as structural causes can be seen to be too deterministic, arguments in favour of the agency of the poor, who are exercising a choice to migrate may appear too simplistic and too willing to ignore underlying structural factors and their impacts on lives of the very poor.[7] Indeed, all human beings can be said to make a choice even if there seems to exist no meaningful choice. But this is also not a very satisfactory view since as per this, there is always a choice by definition.

Third, if migration is caused by human agency exercising control over the conditions of its existence, then so are policies directed at arresting distress migration. After all, an elected government's policy is a reflection of the will of an electorate exercising its agency and pushing government policy in a direction that it feels needs giving priority. It is therefore difficult to see why government should not intervene. Those who argue in favour of equity, for example, can also be understood to be arguing that government intervention actually creates better markets by creating more opportunities, incomes, better health, education and human capital formation.[8]

Fourth, it is also difficult to see the logic of insisting with the government not to intervene to restrain migration at the point of origin and yet exhort the government to intervene to create conditions wherein migrants are not exploited at the point of destination. After all, if government interventions create distortions in what would otherwise be a rational choice of agents in a free market situation, why not allow the market to take care of itself?[9] Instead, why not see the conditions of employment obtaining at the end point as a market-driven equilibrium? Or if these conditions imply a market failure, why do conditions at the point of origin not qualify as market failure enough to warrant government intervention?

Fifth, what if government intervention were to actually and sustainably open up a greater basket of choices for the migrant to make a real choice whether to migrate or not? Or if government policy were to make migrants willingly stop migrating and make them active agents ("agency") of economic development? By arguing that migration is not driven by structural causes, the pull theorists effectively treat migrants as passive, although they are ostensibly arguing in support of their agency.

Sixth, arguing against government intervention to curb migration runs the same risks as arguing against the idea of government itself. For, it may not be possible to visualize a situation of no government[10] and only markets. In the Indian context, legislations such as MGNREGA, where implemented well, have brought out how poor communities want government programmes to not only exist but also to function well.

Finally, the agrarian distress argument. It may be premature to assume that agrarian distress and discontents arising thereof are a signal of a population desperately wanting to be freed of the burdens of agriculture. The arguments favouring migration tend to assume that migrants are going to continue to be unproductive at their home sites. Further, that technological change in agriculture has reached its peak and cannot be built upon to improve land and labour productivity. They also tend to treat migrants as a monolith, facing the same constraints and hence amenable to the same set of interventions. Further, the assumption that capital formation must take place outside of agriculture tends to conflate capitalism with big capital only. It ignores the fact that small and marginal farmers and tribal cultivators have land which may be constrained for productivity. Public investments in these lands can (and have been demonstrated to) ease these constraints and make them contribute to the growth process[11] and incentivize private investment.

The initial theory on migration like the one proposed by Arthur Lewis, (Lewis, 1954) and Ranis and Fei put forward the argument of unlimited surplus labour in agriculture feeding the transition to an urban and industrial society (Bhalla, 2009). This theory of economic development had its resonances in the dominant nineteenth-century view of the relation between town and countryside as it would play with the formation of an industrial society. For most post- colonial development states like India, this was one of the cardinal assumptions of the economic planning process to modernize agriculture as well as industrialize. John Harris and Michael Todaro argued that migration occurs when the expected urban wage rate exceeds the expected rural rate, where the expectations depend upon the percentage of unemployment in the two sectors (Harris and Todaro, 1970). The Harris–Todaro model, therefore, predicts that, unlike in the Lewis model, more people will migrate than can be absorbed in the urban sector leading to urban unemployment and to the emergence of an urban informal sector. The dominant neoclassical model of Todaro views the phenomenon as individual utility maximization behaviour where wage differentials between the urban and rural sectors are considered to be the prime determinant of migration. This perspective has been put forward as "residual sector hypothesis" (Vaidyanathan, 1986), which occurs when labour is not fully absorbed in the agricultural sector and the non-agricultural sector acts as sponge for the excess labour.

The critics point out that the neoclassical theory assumes a homogenous nature of rural migrants ignoring the fact that the rural to urban migration is not always based on a strategy of maximization but of survival. As argued by Breman (2013c), seasonal migration is a matter of survival or, at best of consolidation, and hardly ever results in accumulation or reinvestment in the home areas. Breman has argued that the continued migration over the period of time has hardly improved quality of tribal life, particularly for the large and growing underprivileged, and the cash income derived from labour outside the home area is not in itself enough protection from social and economic deterioration (Breman, 2013c). Commenting on the

particular nature of capitalist growth that promotes an informal regime, he has also raised the issue of migrants working and living in inhuman conditions questioning the desirability of the whole process (Breman, 2013a). In this context, seasonal migration has been considered as a typical case of such distress diversification where poorer households migrate to urban areas in search of unskilled employment in the informal sector which essentially does not reflect the strategy of maximization but of survival. Environmental degradation is one of the major reasons that causes occupational diversification or distress migration.

According to the "growth theory version," migration is seen as being induced by expanding opportunities in the urban areas whereas as per the "Third World urbanisation version," migration is seen as being induced by the failure of the rural labour market to provide employment opportunities to the growing labour force. However, both the versions concentrate only on labour market-related migration/movement. Thus, there evolves another framework according to which a complex interplay of variations in the labour market, natural disasters and development-related factors determine the decisions to migrate (Jayaraj, 2013).

Priya Deshingkar relates the concept of migration with chronic poverty. It points out that a large section of population in India has been a victim of growing levels of inequality and uneven growth. This section mainly belongs to remote rural areas (RRAs) and is chronically poor. Chronic poverty has been viewed in terms of multiple deprivation such as inferior socioeconomic status and geographical location, a lack of choices and insecurity (Deshingkar, 2010).

Alternatively, the models based on new economics theory of migration called "inter-temporal family contract models" of migration are based on the premises of "household utility maximization" according to which the decision to migrate is not taken by an individual alone, family members also have a role to play. It provides an effective mechanization to self-finance local production activities and acts as self-insurance against local income risks.

Occupational diversification in rural areas can be seen in the context of two perspectives in India. The first is development perspective and other is distress perspective. According to the former, the changing workforce composition is attributed to factors like agricultural prosperity and growing urbanization associated with positive linkages, enabling the labour force to diversify in order to tap new income and employment opportunities (Rani, Uma and Shylendra, H.S. 2002). The second perspective (McGee, 1971) relates the phenomenon to poverty, rapid population growth, agricultural stagnation and depleting natural resource base that compels the labour force to diversify which includes depending on seasonal migration to distant places. Seasonal migration has been considered a typical case of such distress diversification where poorer households migrate to urban areas in search of unskilled employment in the informal sector.

There has been a lot of discussion regarding the relative importance of push and pull factors in inducing migration. Income differentials are seen as the major pull factors while seasonality risk, market failures, erosion of assets and landlessness are seen as push factors. Another major study (Connell et al., 1976) tries to understand migration as an imbalance in access to resources that exists between regions, families and villages. The study also deals with the expenditure pattern of remittances. It was found out that remittances are mainly used to meet everyday expenses and after that into conspicuous consumption like repaying debts and paying bride price. It was also revealed that remittances are not an economic phenomenon alone but also involve a social angle by becoming an instrument for migrant households to seek a continued stake in the village economy and social hierarchy. Regarding the negative impact of absence of migrants on agricultural production, the study observed that it gets reduced if women take care of it; however, a large emigration can still produce a drastic shortage of men which may lead to shift to easy crops of low value.

The argument also defies the dominant neoclassical theory of rural to urban migration, which is based on the individual utility maximization behaviour given the wage differentials between the urban and rural areas. In the same direction, the models based on new economics theory of migration suggest that migration provides an effective mechanization to self-finance local production activities and acts as self-insurance against local income risks. While discussing the impact of migration on poor households, it can be argued that the phenomenon helps in providing food security to them, enables them to pay for healthcare and at social events and also increases the creditworthiness of the family at their native place. However, on a negative note, it has been argued that for many chronically poor families, migration provides only a coping strategy without having any impact on their poverty overall. Such migrants are often engaged in lowest paid 3D jobs (dirty, dangerous and degrading), characterized by poor employment conditions, debt bondage and recruiting agents, limited personal freedom, restricted access to information and violation of human rights. Women and children from SC and ST household are often employed on the worst terms and are the most vulnerable to exploitation. Absence of childcare facilities is a major concern for women migrants. Thus, it is not uncommon that young girls specifically for taking care of children accompany migrant men and women. Even at home, young girls are burdened with all household cares while taking care of young siblings (Rao and Rana, 1997).

The Bremen's theory of neo-bondage can be placed here in support of the argument according to which labourers are forced to sell their labour for the advance they receive which they then pay off through working. Further, a large section of this bonded labour belongs to the SC/ST community as mentioned earlier which conforms to social hierarchy that makes bondage acceptable. Given the arguments, although migration is not essentially the ideal or easy way to earn livelihood or to improve the standard of living, it

does provide a way out of the log jams of disadvantages at the source areas including poor governance, leakage and corruption, social exclusion, physical isolation, restricted access to natural resources and low rainfall. Also, the probability of migration increases with remoteness.

The emergence of multi-nodal growth points in the form of small and medium census towns, rural service centres and large villages have given a way for rural-to-rural mobility as well. Further, due to this, the dominant/traditional form of rural mobility based on the duration of stay at destination known as circular or seasonal migration is gradually shifting to commuting. Long distances to urban areas and inadequate transport facilities also contribute to the phenomenon.

The findings by Amitabh Kundu and others (Kundu et al., 1996, 2007, 2012) on the contrary suggest that there has been a decline in urban growth and migration in recent years owing to the exclusionary urban growth theory which stipulates that the negative policy perspective (based on the premise mentioned in the former statement) and increased unaffordability of land and basic amenities by the rural poor have led to deceleration in urban growth.

Economic deprivation is not the most critical factor for migration decisions, even for seasonal migrants. People migrate out of both poor and rich households, although the reasons for migration and the nature of jobs sought by them are different. Short-duration mobility is very high among the poor when compared to middle-class households. Large cities have become less hospitable and less accommodating for the poor, reducing the absorption of economically dispossessed migrants and consequently, report a much lower poverty risk when compared to smaller towns (Kundu and Sarangi, 2007).

A number of city-level interventions which promote governance and infrastructural facilities have pushed out the squatter settlements and several informal sector businesses along with large pollutant industries to the city peripheries which in turn have led to increased intra-city disparity and creation of degenerated periphery. Complementary to these, there have been initiatives to promote rural development creating satellite towns for slowing down rural to urban migration and reducing pressure on infrastructure, particularly in globalizing cities. Together, these measures have encouraged selective migration to central areas and "sanitization of the cities". The trend also reflects the "elite capture" of the process of urbanization.

It can be concluded here that as long as the regional inequalities persist, the circular/seasonal migration will continue. However, with the growing pace of urbanization and development in the source areas, commuting as a form of poverty-driven mobility is likely to increase while being less receptive, the large global cities are expected to experience decrease in emigrants from rural areas.

The findings based on the analysis of 64th round of NSS (Employment, Unemployment and Migration survey, 2007–08) as put together by Keshri and Bhagat, (2012) noted high incidences of regional pattern of temporary

and seasonal labour migration in India, the phenomenon is more prevalent in rural areas of northern and eastern states. In general, socio-economically deprived groups such as Adivasis and those from the lower castes have a greater propensity to migrate seasonally, which also reflects its distress-driven nature. More than half of the migrants were in rural to urban stream, followed by rural to rural. For females, rural to rural migration was higher. For males, rural to urban dominate due to increasing difference between income and employment.

While outlining the characteristics of temporary migration rate it was observed that it was the highest among those in lowest MPCE quintiles; the rate fell with the increase in size of land possessed particularly for rural areas and those with less than one hectare of land had the highest rate of seasonal migration; it was found to be highest among STs (45/1,000); for rural areas' STs (49/1,000) against (30/1,000) for SCs; highest among Muslims (23/1,000). Rural inhabitants of Madhya Pradesh, West Bengal, Nagaland and Jharkhand (basically those belonging to economically backward and low-growth states) had a higher likelihood of migrating seasonally (Gujarat is an exception being having dry, hilly and tribal-dominated districts); in urban areas, with increasing income chances of temporary migration decreased and here, SCs and OBCs have higher chances of migration. All these mentioned states either have high intra-state inequality or high proportion of STs and SCs population.

The Working Group on Migration, set up by the Ministry of Housing and Urban Poverty Alleviation, in its report of March 2017 notes that as per Census 2011, migration in India is majorly from rural to rural areas (47.4%), followed by urban to urban areas (22.6%), rural to urban areas (22.1%) and urban to rural areas (7.9%). Between Census 2001 and Census 2011, rural to urban migration increased marginally from 21.8% to 22.1%, and urban to urban migration increased from 15.2% to 22.6%. In urban areas, about 33% of the male workforce and 56% of the female workforce are composed of migrant workers. (

Today, this variegated mobility has become an economic reality for millions of workers in the country.

The available data indicates a varying number of migrants in India. The 2001 Census and the 2007–08 National Sample Survey (NSS) both provide broad information on internal migration but miss important aspects of India's internal migration patterns. The 2001 Census suggests that more than 300 million are internal migrants. However, the defining feature of the migrant is fairly elastic, which places the primacy on the place of birth, or last place of residence and a deviation from it, to qualify the person as a migrant.

There are several constraints to looking at the issue of migrants in this form of a definitional context. The National Sample Survey Organisation (NSSO) as well as the Census do not capture the short-term seasonal movements, which form a large component of the migration process. Apart from the aforementioned, there are other issues, too, that relate to the problems of data such as the inadequacy of noting the extent of

migration of women, of noting the migration of children for work in migration streams, the issue of circular migration, as well as the capture in the data of the migration of SCs and STs in migrant populations. The data set also does not adequately understand the link between migration and poverty. These do not take into account the changes in economic conditions, including consumption and lifestyle, that migrants undergo while adapting to their new environment in urban areas and also the problems they face in leaving the security provided by the family, the community, well-established work patterns, economic and social relationships to live and work in a harsh and hostile environment and among people most of whom are strangers.

Given the nature of the data and the context of rapidly urbanizing India, what, then, are the realistic figures and what are the major streams of migration? Given the complexity of the data, realistic figures may elude us at the moment, but even with available figures, as captured by the NSSO do indicate an extremely high degree of levels of migrations.

We may briefly capture the following major streams to illustrate the points and flows of migration as well as the geographical, cyclical nature of source and destination points. As stated earlier, if we aggregate, then the major sectors that emerge as sites of labour would include construction (including brick kilns), textiles and small manufacturing units, agriculture and the burgeoning and wide-ranging services sector.[12] Needless to say, almost all the migrants fall in the arena of informal-sector labour and, thus, the issues that pertain to informal-sector labour (constituting almost 93% of the total labour force) are also the issues that are germane to migrant workers. An analysis of the data suggests that the number of informal-sector workers in 2005 was around 422 million, up by almost 61 million in five years (NSSO, 61st Round). This, by any means, is a phenomenal increase and is a pointer to the casualization of labour and the workforce.

Available studies also indicate that all the three sectors of the economy employ a large number of migrant labours. The major sub sector where they get employed include apart from the seasonal agriculture labour (sugarcane cutting, cotton picking, harvesting operations, crop transplantation and plantation work), construction, textiles, mines and quarries, brick kilns, small-scale industries, (diamond, leather, carpet to name a few) security services, hotels (including small eateries, roadside dhabas and joints) domestic help. This perhaps is not a comprehensive list but at the same time is surely a representative one.

Predictably, as available shared experience of those engaged with the issue indicates, all the major source regions from where migrants are going out as labourers are characterized by very low social and economic development indices. Migrants from those regions are reaching destination points, where the work opportunities are being created by growing economies and the construction boom. Massive exodus from rural areas to urban settlements is a myth. Demographically, it can be seen that permanent residential migrations account for only 18% to 20% in the net urban growth over

1961–2010 (Denis and Zérah, 2014, p. 17). The realities of migration have a large share of commuting and temporary movements of different durations highlighting Indian peri-urban environment, where opportunities of work are also flowing massively in a centrifugal manner and large-scale distress-induced migration from rural areas.

Distress in "Rural" and Exclusionary "Urban"

The tragedy of farm sector and peasants is symptomatic of lost opportunities, incorrect prioritization and insensitivity exhibited by the state towards an economy that is still the mainstay of the "rural". More than 250,000 farmers have committed suicide in the country in the last decade-and-a-half. Studies have indicated that the farmers who committed suicide were impacted by a crisis initiated due to a combination of factors. These factors include, amongst other things, the rising spiral of indebtedness and the unviability of cultivation given the nature of holdings and the market forces. Indian agriculture has been in a state of decline for quite some years.

As the public investment in agriculture faced a decline in the successive plan periods (Table 4.1) in real terms along with the rise in the input costs, more and more peasants were, and are, in the process of losing their land. Investment in Indian agriculture has been declining for quite some years. A rough estimate indicates that an overall reduction of investment in the rural sector is to the tune of 60% compared to the year 1985 (Desai Rajani, September 2003).

The reduction in the sectoral investments is massive. This reduction can be pinned down to the year 1980–85. That year forms the watershed in the history of investment in Indian agriculture (Table 4.2).

Table 4.1 Plan Outlay in Agriculture and Allied Sectors (Crore ₹)

Plans	*Total plan outlay*	*Agriculture and allied sectors*	*% of agriculture and allied sectors to total*
I Plan (1951–56)	2,378	354	14.9
II Plan (1956–61)	4,500	501	11.3
III Plan (1961–66)	8,577	1,089	12.7
Annual Plans (1966–69)	6,625	1,107	16.7
IV Plan (1969–74)	15,779	2,320	14.7
V Plan (1974–79)	39,426	4,865	12.3
Annual Plan (1979–80)	12,177	1,997	16.4
VI Plan (1980–85)	97,500	5,695	5.8
VII Plan (1985–90)	180,000	10,525	5.9
Annual Plan (1990–91)	58,369	3,405	5.8
Annual Plan (1991–92)	64,751	3,851	6.0
VIII Plan (1992–97)	434,100	22,467	5.2
IX Plan (1997–02)	859,200	42,462	4.9
X Plan (2002–07)	398,890	20,668	5.2

Source: Planning Commission, 10th Plan Documents.

Table 4.2 Investment in Agriculture

	Gross capital formation				*Percentage share of*			*Investment in Agriculture as % of GDP*
	Agriculture	*Total economy*	*Public sector in agriculture.*	*Pvt. sector in agriculture*	*Public sector in agriculture*	*Pvt. sector in agriculture*	*Agri. to total*	
1993–94	13,523	181,133	4,467	9,056	33.0	67.0	7.47	1.6
1994–95	14,969	229,879	4,947	10,022	33.0	67.0	6.51	1.6
1995–96	15,690	284,557	4,849	10,841	30.9	69.1	5.51	1.6
1996–97	16,176	248,631	4,668	11,508	28.9	71.1	6.51	1.5
1997–98	15,942	256,551	3,979	11,963	25.0	75.0	4.77	1.4
1998–99	14,895	243,697	3,869	11,026	26.0	74.0	6.11	1.3
1999–2000	16,582	268374	4,112	12,470	24.8	75.2	6.18	1.3
2000–01	16,545	274,917	4,007	12,538	24.2	75.8	6.02	1.3

Source: Planning Commission, 10th Plan Documents.

In fact, the latest figures of the revised estimates suggest that the planned expenditure on agriculture has been cut by almost 9.5%. "The most serious aspect of the crisis in agriculture is deceleration in its growth along with the distressed state of farmers in general and that of small and marginal farmers in particular" (Report of the Expert Group on Agricultural Indebtedness, 2007).

As per Census 2011, only 96 million cultivators enumerated farming as their main occupation, down from 103 million in 2001 and 110 million in 1991. Still 38% of the workforce is working full-time in farmlands. Even with this decline in full-time agricultural workers, 57% of the population is engaged in generating 14% of the gross domestic product from the agricultural sector. It has been estimated that the size of the operational holding for marginal and small farmers has now shrunk to around 1.13 hectares (Agriculture Census in India, 2011), an unviable proposition for sustaining a livelihood on agriculture. Since it is the small farms that are able to make more intensive use of the labour of members of the household, when peasants lose their only real base of production, the land, there is a corresponding decline in employment. Marginal and smallholdings constitute almost 90% of our total agriculture holdings (Agriculture Census in India, 2011). The already feeble and meager agriculture has further weakened. Over the last decade, there has been an overall decline in numbers of tribal cultivators, much more than what has been observed in case of other social groups. The rate of decline of female cultivators is more which underscores the increased vulnerability of females and households. This decline has been accompanied by an increase in the rates of other and marginal workers (males and females) in both rural and urban. According to NSSO estimates, increase in the proportion of Adivasi households who do not possess any land went up from 13% in 1987–88 to 25% in 2011–12.

These figures should bring home the true nature of population and employment burden on agriculture. They also suggest that the economic trajectory is so ranged against the agrarian economy that the sector is no longer in a position to bear a burden of the large mass of people, which then is resulting in near eviction from their operational holdings and habitations. Rural India teeters on the edge of the precipice, and the signs are ominous.

The other associated factor that has contributed to the crisis and distress context of the rural is the enigmatic growth of rural non-farm sector. What was a discernible tangible presence in the traditional economy, sources of non-farm income were intricately tied up to a variety of social ties. It is necessary to situate the sources of non-farm livelihoods in the overall agro pastoral context of the livelihoods. The origins, proliferation and continuation of the non-farm sources of income lie embedded in an overall context of a stagnating labour and limits of employment opportunities that the agro pastoral context could offer.

Here, it would be important to point out these non-farm sources traditionally grew nested in the rhythms that were in tune with the specific agro-ecologies of the regions. According to 1951 Census count, 69.4%

male workers were employed in activities of agriculture, forestry, hunting and fishing in India. Up to 1971, the proportion of workers in these areas remained the same. The proportion decreased to 61 in the 1981 count. During 1971–81 there occurred a decline in the proportion of agricultural workers and a small increase in the population of workers in the manufacturing activities. However, it can be safely said that the condition of the traditional non-farm workers steadily deteriorated after Independence.

The new economic programmes after Independence brought changes in the structure of economic relations with the centre of gravity shifting towards the urban areas. There appeared marked differences in the nature of these non-farm sources relying on traditional skills among regions. It is paradoxical that urban industry and business are able to prosper more than workers of traditional non-farm sources. This is quite evident in the case of craftspeople who constitute almost half of the total labour in the rural countryside and is the second largest generator of employment after agriculture (Craft Economics and Impact Study, April 2011). The often evoked "perennial potential of crafts" has been consistently exploited for commerce of culture by business of different shades.

In the process the "crucial role played by the rural manufacturing activities in the rural economy was lost" (Dasgupta, 1987, p. 299). A modest investment and provision of training along with relevant information could be expected to bring about a significant improvement in the productivity and income of rural non-farm workers. On the contrary "neither the human resource development programme nor the national investment programme was concerned with the improvement of productivity in the rural non- farm workers" (Dasgupta, 1987, p. 303). Government schemes like Training to Rural Youth for Self Employment (TRYSEM) did not expand self-employment opportunities in the villages and led to searches of jobs by trained persons.

So it could be said that the accumulating crisis of surplus unproductive labour in the rural countryside created a context where traditional non-farm activities were to undergo a steady decline. Thus, what could have emerged as a robust ruralized non-farm sector got dissipated into largely a captive and cheap labour force for the expanding urban easily accessible and ready to work at low wages.

From the beginning of the 1970s, the share of non-farm employment has steadily risen with some accelerated growth being witnessed in the decade of the 1980s. It was on the rise post-1993, too, but with lower rates of growth. The number of households that depend on rural non-farm employment (RNFE) as their primary source of income has increased from nearly 32% in 1993–94 to over 42% in 2009–10 (Report of the Working Group on Migration, 2017). Almost two-thirds of the increase in non-farm employment were in casual wage labour whereas roughly one-fifth between 1993–94 and 2009–10 was in self-employment. Evidence suggests that non-farm work is to supplement family income rather than to mitigate risk. Proximity to growing urban areas, therefore, could have a significant positive impact

on the rural non-farm sector. Manufacturing, the largest source of non-farm income and employment in rural areas through the 1990s, did not create jobs during the post-liberalization period of high growth. This is because the growth of organized manufacturing in rural areas has largely been in natural resource-based industries, which are capital-intensive and do not employ much labour.

The processes of deep transformation of the rural livelihoods contributed to the undermining of the "rural structural distinctiveness in terms of resource endowments and factors of production" (Mehta, 11–12 June 2009, p. 3) and hampered the processes and preconditions of rural livelihood diversification. This has had its bearings on the livelihood and well-being of rural communities. The inability to actualize the triad of "opportunities, empowerment and security that have complimentary and supplementary roles in neutralization of economic deprivation" (Mehta, 11–12 June 2009, p. 4) contributes to newer cycles of mobility outside.

Even if incremental returns from agriculture were to come in through investments in better farming techniques, the growth trajectories of developing economies bear testimony to a shift in occupational structure away from agriculture. This process, a global phenomenon, has had a fallout in terms of patterns of migration as well as on the emerging nature of the agrarian crisis, as the shift of population from agriculture has not been accompanied by a corresponding increase of credible opportunities in the non-farm sector. Rather, this increased casualization of workforce in the rural has perpetuated a trend towards low and unskilled wage hunting in the emerging morphology of urban India. The mobility of Indian labour, both rural to urban and intra rural, becomes a regular reality in the second half of the twentieth century. The ensuing decades of economic liberalization have put a further squeeze on these mobility patterns. This has contributed to increased casualization and footloose wage hunting by majority of migrants negotiating the expanding rural urban continua. These have been accompanied with the increased share of informal employment, with now around 93% of India's workforce in "informal employment" (Sengupta, 2009).

The available governmental data indicates that India is urbanizing at an extremely rapid pace. From a mere 17% of people living in urban areas in 1951, today it is more than 31% and is likely to go up to almost 45% and above by 2040. As a figure in itself this may not look as impressive as one may argue that we have barely managed to double the population in urban areas. However, that would be a misleading statement in itself. The data from the census clearly indicates that in the first three decades of Independence the percentage of population living in urban areas barely increased by 2.5 (from 17.2% to 19.4%). In the next 30 years, it went from almost 19% to 27%, and in the last decade of the Census count it has gone up to 31%.

Thus, we can safely say that urban growth has been compressed in the last two-and-a-half decades of the life of the republic. Moreover, what is significant is that this process of urbanization is characterized by a marked heterogeneity

that makes the experience of urbanization very region-specific. This growth, however, is more pronounced in the last decade or so in which the number of Census towns increased from 1,362 to 3,894, statutory towns from 3,700 to 4,041 and total cities and towns from 5,161 to 7,935. This increase is more pronounced in the western and the southern parts of the country but has been felt in the northern and eastern parts as well. Here it is important to point out that in the last two decades an important aspect of urban growth is the rise in the share of urban population in the rapidly increased number of census towns that account for almost one-third of the total urban population (Pradhan, 2013; Denis and Marius-Gnanou, 2011; Denis and Zérah, 2014).

Further, in the emerging morphology of urbanization in India, the shift of main industrial areas from core to peripheries of mega cities, growing intrusion of the manufacturing sector in rural areas has spawned a kind of demand for labour and growth in certain sectors of economy that has, in turn, given impetus to migration patterns that recalibrate the rural to rural and rural to urban mobility in a newer way. It is around what has been referred to as "middle urbanisation" settlements that increasing number of labour can find opportunities to quit agriculture and chronic underemployment. The peri- and proto-urban realities constitute a new form of linkage of small towns with their hinterland. Moreover, it has been seen that small towns constitute a transitional location that gives opportunities to rural migrants for experimenting with city life, form new networks, acquire confidence and learn skills outside of agriculture before some would move on towards larger cities.

The middle urbanization in most of these tribal regions has been due to the processes of natural resource control and appropriation with its concomitant encouragement to real-estate projects. Adivasis living around urban areas have lost their land either through illegal dispossession or through sale of their land at low prices. This is the case, for example, in around Ranchi (in Jharkhand), Raipur (in Chhattisgarh), and Bhubaneswar (in Odisha). To take the example of Bhubneswar, a city riding on the wave of "mining happiness", which did not even have a three-star hotel two decades ago, today boasts of five five-star hotels and over a dozen four-star hotels (Desai, Nachiketa, 2021).

Exclusionary urbanization that has had its impact on the quantum and stream of migrants towards the big cities has been well documented. This also becomes evident in the manner in which budgetary allocations, public delivery systems and services are prioritized across the urban hierarchy of settlements. About 42% of the total urban population accounted

> for 79% of the total allocations whereas only 21% of allocations [were] attributed to the remaining [towns that accounted] for 57% of the total urban population. Out of a total of 5161 urban centres. 4207 are yet to be covered despite a large under utilisation of funds available in JNNURM.
>
> (Kundu and Bhatia, 2002)

Kundu and Bhatia (2002) pointed out that there is indeed a wide disparity in the availability of these institutional funds between large and small cities, pointing out that 50% of funding from H"ousing and Urban Development Corporation Limited (HUDCO) had been directed towards large cities, even when the development of small towns had been one of the stated objectives.

It has been explained that this inadequate allocation reveals the technical "inability of the smaller urban local bodies to prepare detailed project reports and generate matching resources" the shift of emphasis from the provision of basic amenities for the poor to integrated multi-storied housing projects, [which] inevitably brings in real estate developers and enables them to corner a large part of the slum land that will then be used for commercial purposes.

Urbanization in India has brought with it increased percentage of people living in slums where populations that have invariably grown faster than the pace of urbanization. Creation of slums by migrants is an organic outcome of rural to urban migration, and indeed form the mainstay of urban growth. The socio-economic profile of inhabitants of slums "clearly points to the vast difference between living standards of slum dwellers and the urban averages". In fact, some studies have pointed out that many census towns and new townships have large areas that remain at the levels of a slum-like existence.

Central India Tribal World and Mobility

Constitutionally referred to as "scheduled tribes", tribal communities are among the poorest social groups in the country. As per 2011 India Census, Scheduled Tribes (STs) constitute 8.6% (104.3 million) of India's population and traditionally concentrated in about 15% of the country's geographical area. The tribal population represents an enormous diversity of groups, linguistically, geographically, in terms of physical attributes, livelihoods and level of development and social stratification. It is estimated that 47% live below the poverty line in rural areas and 30% in urban areas. Within India, stunting is highest (54%) among tribal children.

Recent policies of financial liberalization and the aggressive spread of capitalist relations in Adivasi-dominated areas have caused changes in the lives and livelihoods of the Adivasi people (Scheduled Tribes, STs) with many of them living in acute deprivation with respect to living conditions in Adivasi habitations and high levels of poverty among Adivasi populations relative to other social groups. These include, although not limited to, loss of control over natural resource regimes that include both farmland and common property to competing claims by dominant social groups and processes of urbanization and industrialization impleaded by increased penetration of capital and market. This is compounded by increasing incidence of casual labour among tribals in both rural and urban regions. In rural areas the share of STs is around 55% as compared to around 48% for all social groups. The figures are telling significantly for the urban areas where

ST male (30.7) and female (36.9) contribute far more than all social groups male (17.7) and female (20.6) (Report of the High Level Committee on Socio-Economic, Health and Educational Status of Tribal Communities of India,2014). This speaks of the squeeze tribals have been subjected to in the context of a rapidly urbanizing India. The value of assets held by all social groups is around 95% higher in rural areas and around 45% higher in urban areas as compared to assets (land and building) by tribal household.

Over the decades there has been an intensification of uncertainty in Adivasi livelihoods that are typically characterized by occupational fluidity – linked to land loss or degradation of natural resources, increasing unviability of dryland farming, decreasing workdays in agriculture coupled with rising number of seasonal agricultural labour, increasing low skilled casual and seasonal employment in urban built environments. Tribal livelihoods portfolios are ingenuous combinations of farming with wage labour, shifting through the year between family labour on the farm, agricultural wage work, at times supplemented by labour in crafts-based livelihoods, work as migrant labour in low-paying, poor and unhealthy living environments and daily manual non-agricultural labour.

The report of High-level Committee on Socio-Economic, Health and Educational Status of Tribal Communities of India, Ministry of Tribal Affairs, GOI, 2014 states that the poorest and deprived areas of the tribal belt on central India such as Chhattisgarh, Telangana region, Jharkhand, southern Madhya Pradesh have become labour pools, from where cheap labour can be drawn on seasonally. Due to poverty and lack of employment opportunities, tribal families send unmarried daughters to cities in search of work. Single women and tribal girls are, however, prone to exploitation not only by employers but also by anti-social elements. Receding forest cover combined with low agricultural productivity and rainfed agriculture create the need for credit and this leads to seeking employment and livelihoods under bondage, often through migration.

Different micro regions of the central Indian region have been populated by a wide range of tribal communities. Over time, capitalist enterprise and development processes have impacted in specific ways on "isolation" and eco habitats of these tribes. The states of West Bengal, Odisha, Jharkhand, and parts of Chhattisgarh form the upper parts of this region. The central region mostly comprises Madhya Pradesh, some parts of Chhattisgarh, south Rajasthan and south Gujarat. There are also parts of south Maharashtra.

Jharkhand, Odisha and Chhattisgarh

No or small landholdings, displacement/forest, drought/crop loss, food insecurity, improper implementation of government schemes, health expenditures and indebtedness are the chief factors for diverse trends of migration. The long-term migration ranges from 1–2 years duration in any one particular or multiple worksites; seasonal or circular migration ranges from 6–8 months due to lack of unemployment whereby migrants leave the villages

and come back before the monsoon to be engaged in farming and short-duration migration takes place for 2–3 months to work in irrigated, road construction and other short-term projects.

The incidence of migration is the highest from the eight undivided Kalahandi, Balangir Koraput (KRK) districts. Other districts like Nuapada, Kalahandi, Bolangir and Ganjam are famous for distressed seasonal migration. In these districts estimates suggest that as high as more than 80% of the migrants go to the brick kilns. This is followed by Mayurbhanj, Keonjhar, Malkanagiri and Raigarh where more than 40–50% have little option but to opt for long-distance seasonal migration. Many do not like to work in MGNREGA due to forged muster rolls and delayed and irregular payments. The labour contractors were mostly local people personally known to the migrant families by virtue of the long-term association of about 18–20 years. More than 80% of these contractors act as intermediaries and suppliers of workers to these brick kiln owners in places like Hyderabad, Waltair, Karimnagar of Andhra Pradesh, Faizabad and Ghaziabad of Uttar Pradesh or in any other states such as Chhattisgarh, Gujarat and Karnataka. More than 33.32% people migrate to Chhattisgarh and most of them are construction workers, gardener and rickshaw puller. Similarly, 33.45% of migrants migrate to Maharashtra to work as construction worker, mason and industrial labourers.[13]

For example migration in Koraput district was reported to have nearly doubled within one year, from 2006 to 2007, and risen by another 25% by 2008 showing a sharp upward trend. Particularly in tribal areas, the phenomenon is an involuntary survival tactic rather than being a voluntary approach for progression.

The migrant labours are called "dadan" in the local dialect of KBK region. In absence of any alternative sources of income and employment, villagers are left with two options – to starve or migrate (SPREAD, 2008–09). Micro studies have brought out the nature of work disputes and vagaries faced by seasonal migrant workers from Odisha, providing the evidences for failings of migrant labour markets and the inability of the legislative system to redress health issues (Zaineb et al., 2014).

This population is Deprived, Excluded, Vulnerable and Invisible (DEVI). It is invisible because the population is neither visible at the source state nor in the destination state. The starvation deaths frequently reported in the 1980s and 1990s turned into distress migration in 2001 under the Pathuria system. Distress migration means when a family migrate and gets no surplus out of migration. This study further reveals that around 23.07% of this migrant population is children (10.41% infant and 12.66% school going). This means there is family migration and this is termed as pathuria system of migration. It is a work unit comprising a man, a woman and one or two children. Children are preferred in the brick industry for specified works such as flipping the raw bricks due to their light weight. The children of Nuapada, Bolangir, Bargarh and Kalahandi are preferred by labour dalal as because these children are much lighter than children of other regions

of Odisha. These malnourished and light-body children do specific work as aforementioned. During Nukhai festival (an agrarian festival in western Odisha) the poor small and marginal farmers, landless families use to take advance from the labour dalal. These unauthorized labour dalal take the responsibility of transporting the labour from source state to destination state. There is a nexus between different agencies of the government such as the railways, police and the labour department. The labourers are trafficked and made to travel in the packed ordinary-class compartment. They are hardly given any food during travel. In the workplace there is not even the basic facilities. They have to work for long hours. During illness they get abuse instead of medicine and long hours of work instead of rest. There is blatant violation of human rights in this sector. But it is ironical that there is no action among the related departments of the government. During the transportation it is seen that pregnant women and lactating mothers use to go by standing and child and mother death out of suffocation in the railway compartment is not uncommon. During a couple of years it was reported in the media that many of such distress migrants died due to torture in the bricks kilns industries of southern India. In many occasions it is seen that children and women are sexually abused at the worksite by the labour dalals and the contractors. This system of labour trafficking may be called new bonded labour system (Abani from Lokdrusti).

There is an intrinsic relationship between poverty, marginalization, assetlessness and distress migration. The migrant children (who migrate either independently or as dependents when they migrate) are the most unrecognized and vulnerable groups among internal migrants. Most of these children migrate with their families to live in a brick kiln and other unorganized sector like construction site for almost 6–8 months to about one year. There is hardly available or not at all available mechanism to ascertain the scale of distress of seasonal migration, but estimates put about 50,000 numbers of migrants for the state of Odisha.

These categories of children often lose access to basic entitlements, miss out on schooling and are subject to health and security risks. Child migrants forgo critical inputs necessary for their physical, psychological and intellectual development during their formative years. This has an irreversible impact on their emotional and cognitive development.

In contrast to seasonal migration, distress-induced migration is primarily the result of factors which include drought, land alienation, debts and high levels of food insecurity. This form of migration, which had increased in Kalahandi in the 1990s, is a final resort when other coping strategies fail. Such migration usually starts as early as September–October, when there is little possibility of harvesting a crop. Recruiting agents take the opportunity to recruit even cheaper labour than they can normally expect. Due to three successive droughts in 1996–2000, distress-induced migration had become "seasonal" in character and an integral part of the regular coping strategies. The highest degree of migration occurs during rabi season, that is from the September to February.

Odisha

Region	*Tribes*	*Duration*	*Destination*
Odisha District – Koraput Blocks – Similiguda, Pottangi and Narayanpatana	Kandha, Paraja and Gadabas	Migrate after kharif crop i.e. in September– October. For about 6–8 months they stay at destination; however, they keep visiting their native place during festivals. They work there yearly but keep visiting their home town within 2–3 months on festivals and all. It is a kind of regular job there.	(i) Landless or those with marginal landholdings Andhra Pradesh (Hyderabad), Kerala, Tamil Nadu (Chennai and Madurai) – basically towards South. In these states, they go to cities for construction work, building roads and and so on. According to a rough estimate, an individual labour must be able to earn ₹7,000–8,000/ month. They are all unskilled labour. ii) Aspirational youth who don't really want to carry on with farming; Mainly go to nearby regions of Koraput towards only South – Vishakhapatnam, Vijaynagram, Vijayawada, etc. to work in factories and companies and not in construction sector.
Kolabira and Likera blocks in Jharsuguda district and; Kochinda block in Sambalpur district		Commuting for 4–5 months to work at Jharsuguda. In the agricultural season, work in their village only.	a) Tribal workers from both the districts commute to Jharsuguda industrial cluster. The workers from both the districts are either taken by a bus to the working location or the workers commute on their own through trains. b) The workers from both the district also commute to Sambalpur to work at Mahanadi Coalfields Limited. Women also go along with men to work in the industries or railway yard.
Balangir and Boudh and Nuapada districts		For more than six months, from the month of Ashara (mid-June to mid-July), month of Kartik (mid-October to mid-November), month of Magh (mid- January to mid-February, month of Baisakh (mid-April)	Destination 1: Brick kilns outside the state such as brick kilns in Andhra Pradesh, situated mostly near cities like Hyderabad, Karimnagar, Adilabad, Waltaire, Vijaynagar and metro cities like Bangalore in Karnataka, cities in Maharashtra and Madhya Pradesh;

Normally in brick kilns in other places, no work takes place due to the strong sun or heavy rains. The wage rates are of the order of ₹320–₹400 per 1,000 bricks per pathuria (brick makers), but the work conditions are largely similarly to those in the other brick kilns.

Destination 2: Brick kilns within the state, which are situated in coastal areas such as Cuttack, Bhubaneswar and in places like Aska (Ganjam), Berhampur, Nandankanan. However, the demand for labour in these kilns is limited. The brick kilns in coastal Orissa are also popular because the wage rate for manufacturing bricks is higher than the wages in the brick kilns of Andhra Pradesh.

Destination 3: The areas irrigated by Hirakud Canal

In neighboring districts such as Sambalpur, Bargarh, Atavera

when people throng to the canal areas for performing "palha rua" (transplantation of paddy saplings);

when people migrate to the canal areas to partake in the harvest of kharif paddy;

when people reach the canal areas for transplantation of saplings of Rabi crops (the winter crops, like pulses, wheat, millets) and, at the time of harvest of Rabi crops.

Destination 4:

People migrate to a large number of urban locations, e.g. Mombay, Surat, Rajkot, Dehradun, Mussourie, Varanasi, Nagpur, and Raipur. Mostly, people head for these locations to work in construction sites as wage labourers, to pull rickshaw carts and to work in hotels. Several people were found to even migrate to Varanasi and Bhadoi (Uttar Pradesh) to work as labourers in the carpet industries.

Jharkhand

Tribals in Jharkhand migrate in streams to the brick kilns of Uttar Pradesh or rice mills of neighbouring states to the agriculturally prosperous areas of Bihar, Bengal, Uttar Pradesh or Punjab mainly for sowing/transplanting/harvesting of paddy and wheat and to the metropolitan towns and cities as domestic workers and maid servants. Seasonal and permanent migrations are the most opted-for coping strategies in the study area. About 100,000 villagers migrated from Chhattisgarh in three years. These brick kilns are located outside Chhattisgarh in Uttar Pradesh, Maharashtra, Gujarat, Punjab, Madhya Pradesh and Jammu and Kashmir. Counter-insurgency measures have their own contribution to make in propelling displacement and the consequent migration. *Salwa Judum* has led to the forcible displacement of people throughout Bhairamgarh, Geedam Bijapur areas, under police and administrative supervision. According to official estimates approximately 15,000 people from 420 villages are living as refugees in temporary camps. People have left behind their cattle and most of their household goods (Lone and Rather, 2012).

Region	*Tribes*	*Duration*	*Destination*
Jharkhand			
Districts – Palamu and Latehar	Kherwar, Oraon, PVTG tribes Parahiya and Chero	July–January More than 50% ST men mostly in the age group of 18–50 migrate; Women migration is between 20–30% for 2–3 months.	Brick kilns in Aurangabad and Sasaram (district headquarter of Rohtas), Bihar; skilled labourers migrate to textile mills in Surat, Gujarat and work in scaffolding (*Sariya* setting); Labourers in construction activities in Vijayawada, Bengaluru and Hyderabad; Magadh region of Bihar as agricultural labourers in rice cultivation.
District – East Singhbhum Block – Patamda	Santhal	Only for a small percentage ranging between 5% and 10% commute daily.	Tata Nagar (Jamshedpur) or nearby places for construction work.

(*Continued*)

Region	*Tribes*	*Duration*	*Destination*
District-Khooti-Topra Block		Jan to May end. Maximum migration occurs in this stipulated period for their livelihood (4–5 months).	Nearby places, adjacent district and states like Bihar, UP, Punjab; Quite a few HHs migrate to work in brick kilns; In some cases whole family (every member) migrates; then they face problems related to security, education, health and hygiene and so on.

Region	*Tribes*	*Duration*	*Destination*
Chhattisgarh			
Bastar division Kondagaon, Dantewada, Bastar, Narainpur	Muria Gond, Halwa, Batra and Maria	Duration: 7–8 months Composition – Men migrate the most, but in the last few years women have been migrating as well. Around 30–35% are women.	Andhra Pradesh, Telangana, Tamil Nadu, Kerala, Karnataka, Orissa Work in: boring, brick kilns, construction sites (bridges, roads, hospitals, etc.), textile factories, dye industries. Wages: ₹200–300 for 12–14 hours of work in a day. Women are paid around ₹50 rupees lesser per day for the same amount of work. Living conditions: (i) Contractor who takes them from the village already makes a deal with them and takes a portion of their daily wage. This is an agreement between the worker and the contractor which is made before leaving. When a worker wants to go back home, the contractor does not give them their entire money and instead says that he can take the rest when he comes back. This way, he is forced to come back.

(*Continued*)

(Continued)

Region	*Tribes*	*Duration*	*Destination*
			2 Even if they are required to work only 8 hours in a day, they are made to work for 12 hours. 3 Their living conditions are appalling as 10–12 people are cramped into one small room and are not given good, hygienic food. Their toilets are extremely unhygienic as well. 4 People from the southern part of India prefer workers from Bastar as they work for much lesser money.

Region	*Tribes*	*Duration*	*Destination*
West Bengal			
Districts – Jalpaiguri, Alipurduar		Migrate for 3–6 months	Southern India and Nepal, work as masons, in plumbing and cooking jobs; Earns ₹300–500 per day and gets an average of 20–25 days' work in a month.
North 24 Parganas		Migrate for 3–6 months; migrate within the state as well for 2 months	Southern India, work as masons and labourers in construction activities, earn ₹350–450 per day depending on nature of work; Work as agricultural labourers, earn ₹250–350 per day.
North 24 Parganas	Sardar, Maachi, Oraon and Bediya	Commutes daily to in brick-kilns in surrounding areas – within the range of 40–60 km; transportation in local vans – commutes daily round the year;	The females and children of migrant labour force (at home) go to work; the work goes here round the year except monsoon; wages are dependent on the bricks made. Men also try to do work here, but still a large surplus remains, who needs to migrate.

Region	*Tribes*	*Duration*	*Destination*
		Most of them go to Kolkata (3 hours' distance; one can reach here through local transport); Migrates to urban areas of Kerala and Tamil Nadu for 5–6 months.	Males for construction work and females for tailoring; Family migration also take place in this case; in construction sector and tailoring jobs – earns ₹500–600/day.

Madhya Pradesh and Rajasthan

The most preferred destinations are rural districts within MP as tribals here are skilled/experienced in agricultural work; this makes rural to rural migration a logical choice. However, given the seasonal nature of agricultural work, a sizeable population migrate to urban areas also. A smaller group also travelled to far-away cities like Karnataka and Kerala to work in construction sites and sweet-making shops respectively. Agricultural works pay less than construction work.

Region	*Tribes*	*Duration*	*Destination*
(Madhya Pradesh)			
District– Mandla Niwas and Bicchiya blocks		Migrate for 6–7 months in a year and migrants are mostly men in the age group of 18–35 years.	Nagpur, Jabalpur, Raipur, Karnataka, Andhra Pradesh and Tamil Nadu; but fewer people go that far, most of them are engaged as labourers in construction activities and few skilled workers are engaged in plumbing.
District –Betul Blocks – Betul, Chicholi, Ghoradongri and Shahpur	Gond and Korku	5–10% migrate for 15–20 days; earlier it used to be 2–4 months.	within Madhya Pradesh to Raisen, Hoshangabad, Harda and Betul; work in construction or agriculture activities.
District – Anuppur Block – Kotma	Gond, Pao and Baiga	Commute daily. 2–3 months of summers	Out of the total migrant labourers 30% migrate to Kotma block headquarter Majority other go to Bilaspur and Raipur, few skilled workers, mostly youngsters prefer to go to textile mills in Gujarat.

(*Continued*)

(Continued)

Region	*Tribes*	*Duration*	*Destination*
			Employed as masons, labourers in construction activities in Kotma, Raipur and Bilaspur. Painting, saw mills and loading coal trucks at Kotma railway station; Wage rate is dependent on skills of worker, an unskilled labourer earns ₹200–300 per day on average while for skilled labourer the wage rate is ₹300–400 per day.
Blocks – Shivpuri in Shivpuri district; Karahal and Vijaypur in Sheopur block and Gunna in Gunna district	Sahariya	Migrate twice a year – once in winter and once in summer. In summer – at the end of March it starts after the harvest of rabi crop – for 3 months In Winter – from October for 2–3 months	Distress form of migration. Everyone in the family migrate, whole of the village becomes vacant. Whatever they get, they manage it for a few days and that is how this cycle keeps rotating. (i) Panchmahal in Gwalior. It is a hub for wheat farming. They go there for harvesting of the crop. They do contract labour here. A particular size of patch is given to a family or a particular number of people. They work day and night to complete this task. In return, an individual manages to get 1–1.5 quintal of wheat after 2–3 months of labour.

Region	*Tribes*	*Duration*	*Destination*
		Note: In case of wheat harvesting, no money is given to them. They also prefer to get wheat only in return of their labour. They consume some of it during their stay, they set up like a household there for this duration.	(ii) A region called Birbai, at the border of Sheopur and Rajasthan. It is a very fertile region. There also, they go for the harvesting of crops, major area is under wheat only. Big farmers come to take them and also drop them off after the completion of work. Here also, they get only wheat in return. (iii) More recently, for about 2–4 years only, they have started going towards Agra to work in potato farms. The region starts immediately after Murena border, it stretches from Agra to Mathura. It has a bumper production of potato. So, from there also, people have started coming to take these tribal people. Here, they get some money as well, as potato can't be taken in huge quantity. They get ₹200/day. These contractors take care of their daily ration needs and while they do labour for them. At the time of final settlement, they deduct these spendings. Consequently, when they return, they actually end up not earning any significant amount. They manage to get about 10–25 kg of potatoes and some money.

Region	*Tribes*	*Duration*	*Destination*
(Rajasthan)			
District –Banswara – Ghatol Block		15–40 years. Mostly men during distress months of October–March (Diwali to Holi). The duration of migration varies between 5–7 months.	Baroda, Surat, Ratlam, Indore, and Ahmedabad with most of them migrating to Ahmedabad and Surat. Occupation taken at destination: • Manual casual labour: most of the tribal workers work as manual casual labourers when they migrate for ₹250–350/day. The living expenses are between ₹80 and ₹120. • Skilled labour: some ST workers work as skilled labourers in construction industry for ₹400–500/day. • Set up small shops/operates hand cart: some workers open tea/snacks stall at these places and a few also take handcart or rickshaw on rent and then operate it.
District – Udaipur Blocks – Gorgurda, Phalasiya, Jhadol and Sayara	Garasiya and Gameti	60% tribals migrate for work due to non-availability of work in their villages; Migration period is from January to April.	• Surat, followed by Ahmedabad, Udaipur, Mumbai and Bengaluru. • In parts of Ahmedabad and Surat, they work as agricultural labourers in cotton and rice cultivation and work as labourers in house construction. Male migrants constitute the bulk with their share equivalent to 80% of total migrants and the share of women in total migrant is close to 20%.

Gujarat and Maharashtra

The tribal pockets here represent the peripheries of developed urban settlements and mostly double-cropped agrarian regimes. Most of the mobility patterns here are of agricultural workers in cash crops fields. The wages earned as agricultural worker are better than other regions. A sizeable youth population do long duration near permanent migrations. These are better skilled workers who do manage a mobility up the social and economic ladder but are casual nevertheless.

Region	*Tribes*	*Duration*	*Destination*
(Gujarat)			
District – Dangs Blocks – Subir, Ahwa, Waghai		Approximately 70% ST migrates for eight months and more; Approximately 40% ST migrates for 3–6 months; Approximately 25% ST migrates for a week to fortnight.	Ghandevi (Navsari), Bardoli and Madhi (Surat) for sugarcane cultivation and to Nasik, Navapur and adjoining districts of Maharashtra for grapes, pomegranate, and onion cultivation. Billimora (Navsari), Valsad and Surat and work as labourers at construction sites.
Districts – Dangs, Valsad and Navsari)	Kukna, Warli, Kolcha and Bhil	maximum for 4 months after Holi	Valsad – MIDP industrial area – here they get about ₹200–300/day. Nasik – from villages at Maharashtra border to work in the grapes orchard; they manage to earn ₹3,000–4000/ month/person here along with food. Dangs district – to work in sugarcane factory, for sugarcane cutting; here they get on an average ₹200–300/day. However, the payment is on weight basis.

(*Continued*)

(Continued)

Region	*Tribes*	*Duration*	*Destination*
Districts – Santrampur and Kadana	Bhil	Individual migration; for almost year-long job; leave around at the beginning of June and get back by February–March next year. The ones who are going for agricultural labour migrate mostly with families	From Santrampur: First, most of them have turned into skilled labour; go towards cities in districts like Baroda to work with builders; towards Saurashtra (North Gujarat) From Kadana: The migrants from here usually go to cities like Ahmedabad and Baroda to do labour (both unskilled and skilled). Most of them are engaged in mason work. Regarding wage rate, skilled labour manages to get ₹600–700/day while for unskilled labour, it is ₹300–500/day.

Region	*Tribes*	*Duration*	*Destination*
Maharashtra			
District – Gadchiroli Block – Etapalli		December–March	Andhra Pradesh state and adjoining cities like Chandrapur and Nagpur in Maharashtra. • They migrate to Andhra Pradesh to harvest chilli, cotton, building work, driving up to 3–4 months. To Chandrapur and Nagpur for cotton rearing and daily wage labour work. • Wage rate – ₹300–350/-
District – Nandurbar Blocks – Nandurbar, Akkalkuwa, Talode and Shahade	Saura		From Nandurbar, Akkalkuwa and Talode • Destinations are Gujarat, Madhya Pradesh, Nasik (Maharashtra), (for a maximum of 90 days). They are engaged in construction work and grapes cultivation in Nasik. • When migration happens for a longer period, women migrate too, otherwise, it is mostly men. Wage rate for men is ₹200–500 per day depending upon nature of work and for women it is ₹200–250 per day, they are engaged in unskilled work.

Region	*Tribes*	*Duration*	*Destination*
			From Shahade · Labourers commute daily for a period of 15–30 days maximum for agricultural work nearby.
Districts–Dhule, Nandurbar and Pune		For more than six months Daily commuting 3–6 months Short duration (weekly and fortnight) migration one or two members from a family are known to migrate; however, in certain cases the entire family migrates for about 4–5 months in a year. The period of migration (October to May) may vary from 15 days to a month during each migration. Daily commuting from September–Februrary For a week or fortnight (September–April is peak period.)	From Sakri and Shirpur blocks of Dhule to the nearest state of Gujarat, where they work as attendants, labour in cloth market, ginning mills as well as skilled labour for finishing work at diamond factories at Surat is undertaken by agricultural labourers engaged in intercultural operations in irrigated fields of, Navapur, Pimplaner, Sakri and Taharabad. Sugarcane harvesting labourers works as contract labour in the sugarcane belt of Maharshtra. · Building construction and labour work at nearby marketplaces as Satana, Pimplaner and Sakri. From Nandurbar Mostly to Ankaleshwar, Surat, Saurashtra, and Vyara for labour work in the agriculture for sugarcane cutting. From Junnar Block – Pune District · Everyday wage hunters are primarily farm workers. Families having rainfed land go for labour work at Bankar Phata on daily basis. Bankar Phata is about 20–30 km away from the project villages. They work in onion transplanting, weeding different crops, spraying; pomegranate plant cutting, sowing and harvesting different crops. They could earn ₹200–₹250; wage rate depends upon type of work. Such migration is observed mainly from September–February. · They migrate within the same block mostly at Narayangaon, Bori, Alephata, etc. They mainly do farm works like cutting, thinning, removal of offshoot of grapes/pomegranate. They are also involved in harvesting of onion.

The diverse realities of these different patterns of mobility tell us about the kind of spectrum tribal labouring poor eke out living in different micro regions that constitute the central Indian Adivasi belt. These are pointers of different arrangement of the interdependencies between rural-rural and rural-urban of the centre and periphery. Most important is the manner in which private capital casts human labour and subjugates it to the cheapest possible bargain for maximization of profit.

To fully comprehend such diverse patterns of mobility it is important to get away from the dominant imagination about the "urban" that is largely fed by metropolis. Many of the destinations are in smaller cities in their own states, Ratlam, Neemach and Mandsaur in Madhya Pradesh, Karnataka, Andhra Pradesh, Maharashtra, Gujarat. These migrants are engaged in a wide range of occupations including construction, railway and road work, brick-making and quarry work, stone-breaking, casual work in factories, paper-picking, operating handcarts, working as watchmen and many others. Those who are able to acquire skills do experience social and economic mobility, however slow and protracted. These are migrants who are able to successfully contribute to remittances on a periodic basis.

The travails and tribulations of countless and ever-increasing migrants negotiating rural – urban continua are better understood in a contextual manner as being characterized by diversity and dynamism. This avoids constructing stereotypes and allows empathy with subjectivities of everyday struggles of these hardy and tenacious beings. Although silent and reserved in the initial meetings slowly they unveil the saga of their heroic struggles. With an almost uncanny frankness of their experience relating to their work schedules conditions wages, access to essential basic entitlements, dignity at workplace and in habitations. All these issues together impinge on their quality of life.

Given the diverse realities in which lives of migrants are embedded, it needs to be said that it is the complex intertwinement of constraints and choices between the dehumanizing underbelly of urban cities and the famished rural countryside, perceived as a continuum of tragic choices, that characterizes survival/coping strategies of migrants. The significance of the "source" village in the adaptive strategy of the migrants varies with the different stages of the work life cycle of migrants. Invariably, the outer limits of these individual or group adaptive strategies are determined by the work opportunities and survival conditions at "source" and "destination". It is here that region specificity and the possibilities of different contexts assume significance.

These contexts impart a characteristic heterogeneity that is fully understood in terms of a sliding scale, "a continuum on which only the extremes on both sides are in sharp contrast to each other" (Breman, 2013d, pp. 80–81). It avoids falling prey to the caprices of stereotypes and allows for a reflective empathy with the subjectivities of everyday struggles of these hardy and tenacious beings.

On being given a patient hearing, their saga of struggles is gradually unveiled with an almost uncanny frankness, of their experience relating to living an everyday life of pecuniary strangulation, where meeting simple expectations of everyday life is an ordeal – their daily work schedules,

availability of work, occupational hazards, inadequate wages, access to essential basic entitlements, dignity at the workplace. Their feelings, hardest to decipher and possibly communicate, but present as a subterranean stream of consciousness, relate to their engagement with a "social" that refuses to acknowledge them year after year, ostracizing them, while extracting maximum labour possible. These personal narratives of subhuman existence are replete with instances of discrimination and harassment by law enforcement agencies, a fact that painfully underscores the fact of their having no legal personality in these "destinations".

This failed development in these regions contributes to the poor resource base and assets of marginal and small farmers, which is accentuated by the persistence of a context of subjugation that perpetuates severe economic deprivation and thrives on entrenched social discrimination – the exploitation of the poor, landless and castes at the bottom of the social hierarchy. Besides an increasing exodus, what characterizes these "source" agro ecologies is the increased feminization of agriculture that has meant the largely distress-induced participation of women. Thus, migration is not a reflection of failed agricultural policy alone. It can be viewed as a risk diversification strategy, and the remittances do contribute to a share in household incomes. The issue, however, is the low threshold of such incomes that perpetually keeps families at subsistence levels.

In the dynamic world of migrants, captive construction force, seasonal brick-kiln workers, semi-permanent to permanent casual construction workers, loaders, carters and carriers and domestic workers all occupy different niches and provide cheap, and often unaccounted human labour that make rapid urban transformations possible.

Life cycles and subjective experiences of the migrating labouring poor suggest that "source" and "destination" of migration studies paradigm are inseparably hinged together in their life histories. The specific degree of importance accorded to each may vary depending on the particular context of existence of migrants to the extent that either one of them may be discernible only as a symbolic presence, intangibly felt. Journeys, rather than settlement, characterize the life of these footloose casual wage hunters. Itineraries of workers contain ever-increasing number of places many of which are emerging small cities.

MGNREGA, Agriculture and Distress Migration Among the Sahariyas of Madhya Pradesh

A study[14] conducted by the National Consortium on MGNREGA on Sahariyas of Madhya Pradesh and the impact (potential and actual) of MGNREGA on their livelihoods and migration status collected data from 370 Sahariya families in the blocks of Ghatigaon, Pohari and Karahal of Gwalior, Shivpuri and Shyopur districts of the state. Among other indicators, the survey also amassed data on livelihoods and incomes, migration and MGNREGA participation.

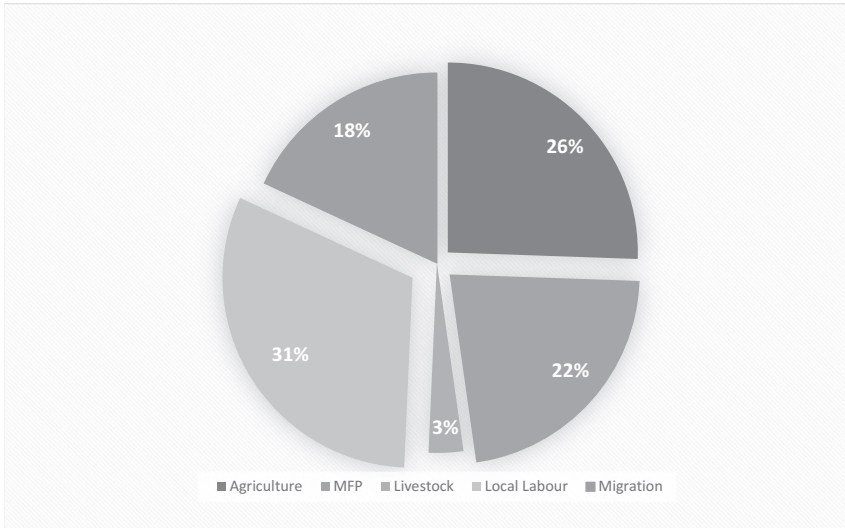

Figure 4.1 Composition of income of a typical Sahariya household

The survey data show that on an average across all households, local labour constitutes the highest component of household income (31.2% see Figure 4.1), followed by agriculture, MFP and migration. Livestock income forms the lowest share. Based on the survey data we have attempted an estimate of unmet demand under MGNREGA in the entire region. Using the disaggregated data from the survey of 370 households, we have analysed the relationship between agriculture and labour market dependence of the households via some regression models. Also, we also look at the level of labour market exposure[15] that such dependence entails and compare the performance of MGNREGA in the districts in the same period to see if MGNREGA demand has been rationed.

The purpose of this analysis is to examine how the neoliberal "aspirational" theory holds up to scrutiny and to suggest ways in which migration needs to be looked at instead. In doing so we also look at how, if MGNREGA works are focussed on creating needed water infrastructure and physical assets, the many Sahariya landholders could potentially reduce their dependence on selling their labour whether in the local labour market or outside as migrants. This would enable them to end dependence on doles, contribute to economic growth and lead a life of self-sufficiency and dignity as compared to the subhuman existence they are forced to lead as migrants.

Also, we look at the issue of landownership and its impact on labour market and migration dependence of Sahariya households. In this context, we briefly examine the experience of land alienation in the community and the possible impacts of arresting this alienation and assigning lands from a proper implementation of the Forest Rights Act (FRA).

Labour Market Dependence Among Sahariyas

Share of Income From Labour at the Household Level

In order to understand the dependence of Sahariya households on the labour market, we relied on a compositional analysis[16] model. Compositional analysis is better suited to situations where the shares of individual variables in the whole are more important than their absolute values. Since we are interested in looking at the dependence on labour vis a vis other sources of income, we felt the determinants of the percentage contribution of different sources of income would be a good starting point. In other words, to find out how dependent are tribals on migration and selling their labour vis a vis other options.

In order to carry out the analysis we used the statistical package "Compositions"[17] which forms part of the GNU R statistical analysis software.[18] To understand whether and how agricultural landownership and access to irrigation influence the shares of different components of household income, we carried out a regression analysis for income shares against agricultural land with each household and the percentage share of this land which is reported as irrigated in the survey.

The shares of different components in income arrived at for the sample were found to be statistically significant[19] and hence could be treated as fairly accurately representative of the larger population of Sahariyas in the districts.

We then used data available from the Agricultural Census on landholdings[20] and area of STs in the concerned blocks of Gwalior, Sheopur and Shivpuri districts[21] to predict the composition of household income for different categories of landholdings size. Table 4.3 shows this data obtained from the Agricultural Census.

Table 4.3 helps us in predicting the composition of income at the household level by plugging the values of irrigation share and agricultural land in the last two columns in each of the categories into the model as independent predictors. The results obtained are summarized in Table 4.4.

We clearly see that there is an inverse relationship between dependence on agriculture and dependence on labour and migration.

Figure 4.2 captures this relationship. The line in the graph shows the percentage of landholding area irrigated while the bars indicate shares of different components of annual household income.

We see clearly that with an increase in both land size and percentage of land irrigated, the share of income from agriculture increases steadily. However, after a landholding size of ten hectares, irrigation share does not seem to matter in this respect. It is more the size of the land itself, even without much irrigation that increases the share of agricultural income in the total household income.

On the other hand, the landless or those with extremely small landholdings have to depend on the labour market because agriculture is not an option for them and there are few other livelihood options available.

Furthermore, as the share of agricultural income rises, the shares of both local labour and migration incomes fall. It shows that if households have

Table 4.3 Distribution of Irrigated and Total Holdings (Number and Area) in Ghatigaon,[22] Pohari and Karahal Blocks, Madhya Pradesh

	Size Class (HA)	*Total holdings*		*Wholly irrigated holdings*		*Wholly unirrigated holdings*		*Partly irrigated holdings*			*Holdings receiving irrigation*		*Irrigation share%*	*Landholding size (average)*
		Number	*Area*	*Number*	*Area*	*Number*	*Area*	*Number*	*Total area*	*Irrigated area*	*Number*	*Net irrigated area*		
1	Below 0.5	1,524	470	230	65	1,043	318	237	82	64	467	129	0.274	0.308
2	0.5–1.0	2,972	2,104	590	428	1,939	1,341	406	300	231	996	660	0.314	0.708
	Marginal	**4,496**	**2,574**	**820**	**492**	**2,982**	**1,659**	**643**	**382**	**296**	**1,463**	**788**	**0.306**	**0.573**
3	1.0–2.0	6,293	8,993	936	1,299	4,236	5,949	1,028	1,512	1,130	1,964	2,428	0.270	1.429
	Small	**6,293**	**8,993**	**936**	**1,299**	**4,236**	**5,949**	**1,028**	**1,512**	**1,130**	**1964**	**2,428**	**0.270**	**1.429**
4	2.0–3.0	2,279	5,194	721	1,582	981	2,218	519	1,111	809	1,240	2,392	0.461	2.279
5	3.0–4.0	916	3,074	361	1,166	416	1,298	123	388	223	484	1,388	0.452	3.356
	Semi-medium	**3,195**	**8,268**	**1,082**	**2,748**	**1,397**	**3,516**	**642**	**1,500**	**1,031**	**1,724**	**3,780**	**0.457**	**2.588**
6	4.0–5.0	462	1,940	101	405	266	1,033	95	401	188	196	593	0.306	4.199
7	5.0–7.5	298	1,658	99	537	121	681	73	351	248	172	786	0.474	5.564
8	7.5–10.0	54	445	22	190	16	128	16	108	44	38	233	0.524	8.241
	Medium	**814**	**4043**	**222**	**1,133**	**403**	**1,841**	**184**	**861**	**479**	**406**	**1,612**	**0.399**	**4.967**
9	10.0–20.0	20	225	1	15	19	204	0	0	0	1	15	0.067	11.250
10	20.0 & above	5	114	0	0	5	114	0	0	0	0	0	0.000	22.800
	Large	**25**	**339**	**1**	**15**	**24**	**319**	**0**	**0**	**0**	**1**	**15**	**0.044**	**13.560**
11	**All classes**	**14,823**	**24,215**	**3,061**	**5,688**	**9,042**	**13,283**	**2497**	**4,256**	**2,936**	**5,558**	**8,625**	**0.356**	**1.634**

Source: Agricultural Census Data available at http://agcensus.dacnet.nic.in/.

Note: The last two columns are calculated by authors.

Table 4.4 Predicted Composition of Household Income in Sahariya Households in All Three Blocks Grouped by Landholding Size (Percentage Share of Each Component in Total Household Income)

	Landholding size (ha)	*Share (%) of:*				
		Migration income	*MFP income*	*Local labour income*	*Livestock income*	*Agricultural income*
Landless	**0**	**14.60**	**31.01**	**51.32**	**1.72**	**1.35**
Marginal	Below 0.5	15.57	27.37	36.96	2.08	18.03
	0.5–1.0	14.80	26.52	33.83	2.43	22.42
	Total	**15.02**	**26.81**	**34.89**	**2.31**	**20.98**
Small	1.0–2.0	14.47	25.13	28.45	3.09	28.86
	Total	**14.47**	**25.13**	**28.45**	**3.09**	**28.86**
Semi-medium	2.0– 3.0	10.53	20.20	20.55	3.78	44.94
	3.0–4.0	8.19	15.49	13.30	4.59	58.42
	Total	**9.90**	**18.90**	**18.31**	**4.04**	**48.84**
Medium	4.0–5.0	7.68	13.30	9.80	5.42	63.80
	5.0–7.5	3.65	6.85	4.17	5.27	80.06
	7.5–10.0	1.02	1.93	0.78	4.75	91.52
	Total	**5.16**	**9.35**	**6.18**	**5.45**	**73.86**
Large	10.0–20.0	0.53	0.76	0.18	5.97	92.55
	20.0 & above	0.00	0.00	0.00	2.93	97.06
	Total	**0.18**	**0.25**	**0.04**	**5.27**	**94.25**
All classes		**13.05**	**23.74**	**26.34**	**3.27**	**33.60**

Source: Calculations based on survey data.

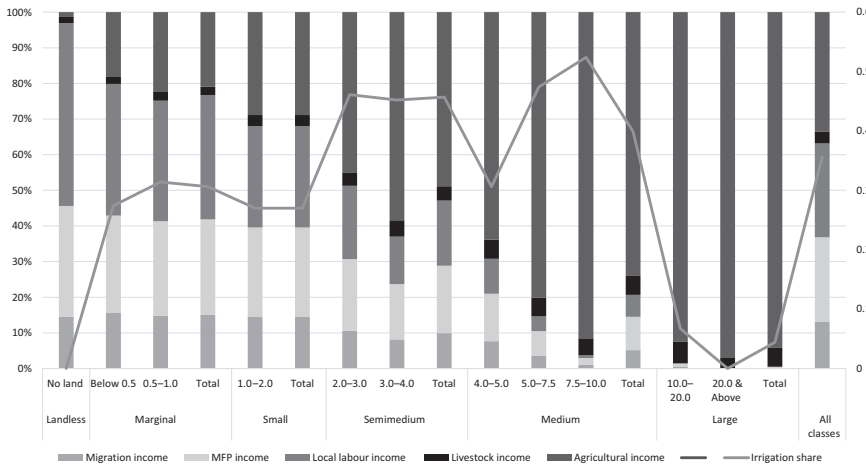

Figure 4.2 Predicted shares of different sources of income for different size classes of landholding

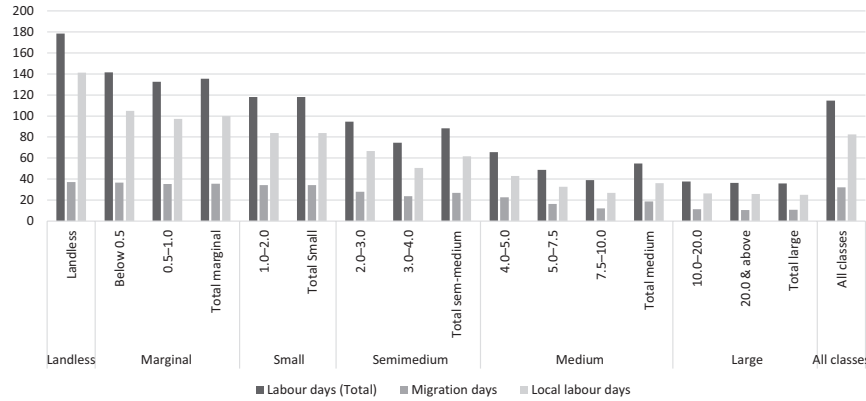

Figure 4.3 Participation (days worked) in the labour market by respondent households

assured agricultural income, they would not like to resort to migration and local labour (with the exception perhaps of labour used on MFP harvesting). If migration and labour were preferred options, with the former being aspirational, this should not be the case.

Days of Participation in the Labour Market

We attempted to estimate the number of days of labour performed as migrants and as local labour based on the size of landholdings and irrigated area through a separate model.

We find that the average number of days offered in the labour market by each household is 115 for all size classes, of which 32 are spent working as migrant labour and the balance 83 in the local labour market. Figure 4.3 shows that participation in the labour market (both locally and via migration) drops as we move from landless to progressively higher landholding size categories.

In the next section, we look at the explanatory variables in the earlier analysis – irrigation and landholdings in the context of the Sahariyas in particular and tribals in general.

Low Level of Irrigation Development

As can be seen from Table 4.4, the level of irrigation development amongst the Sahariyas and the STs of the region is very low, average about 35% for all landholding sizes. In this respect, the experience of the Sahariyas mirrors the experience of tribals across central India. As compared to all other social groups, including SCs, STs have the lowest share of net irrigated area to net sown area.[23] Figure 4.4 represents this disparity based on data from the Agricultural Census. We note that even though this ratio has improved

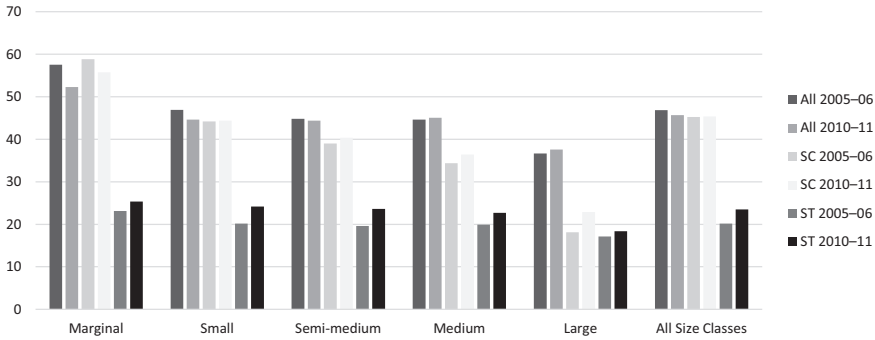

Figure 4.4 Irrigated area to sown area (STs and others), 2011

Table 4.5 Gross Irrigated Area and Change

Period	*GIA ('000 ha.)*	*% change (annual average)*
1950–51	22,563	
1960–61	27,980	0.0218
1970–71	38,195	0.0316
1980–81	49,775	0.0268
1990–91	63,204	0.0242
2000–01	76,187	0.0189
2002–03	73,411	-0.0364
2003–04	78,147	0.0645
2004–05	81,181	0.0388
2005–06(P)	83,939	0.0340
2006–07(P)	86,504	0.0306
2007–08(P)	87,259	0.0087

Source: Indian Agricultural Statistics, various issues, downloaded from https://eands.dacnet.nic.in/Advance_Estimate-2010.htm.

somewhat in the period 2005–06 to 2010–11 for STs, the tribes of India remain far behind all other social groups in this respect. If we look at SECC data, we find that share of exclusions from ST groups on account of owning more than 2.5 acres or more of irrigated land and at least one irrigation equipment is very low, with most states in the CITB showing exclusion rates of less than 1%.[24] Conversely, inclusions on account of failure to satisfy these criteria are very high. This goes to show the abysmal level of irrigation development among tribals of central India.

This needs to be seen in the context of the fact that while gross irrigated area in India grew by around four times between 1951 and 2007–08, the rate at which it grew declined sharply. Table 4.5 clearly shows this trend.

So, within an overall context of declining irrigation, tribals have the least share of irrigated area across all social groups. This is a serious situation and calls for greater investment of public resources on extending irrigation to tribal areas.

Land Alienation Among Tribals

It is also important to note that there is a fair amount of evidence of land alienation among tribals. The high-level Xaxa Committee, constituted by the Government of India (GoI) on the status of tribals in India,[25] outlines several mechanisms through which such alienation takes place. These include development-induced displacement, use of illegal means to grab lands of tribals, incorrect entries in land records and so on. Tribals as a whole constitute more than 30% of those displaced across states. The same report noted that a conservative estimate of the share of displaced tribals who are rehabilitated comes to around 21%, with the backlog of un-resettled tribal displaced coming to around 79% in the period 1951–90. It would also seem that 60% of land acquired is private land while nearly 38% is forest land.

Another study carried out by the Centre for Equity Studies[26] concludes that there is significant land alienation in the tribal districts of fifth schedule states such as Madhya Pradesh, Gujarat, Odisha, Jharkhand, Maharashtra, Rajasthan and Andhra Pradesh. In villages surveyed in Chhattisgarh's Raigarh district, 35–40% of households reported losing their land. In Andhra Pradesh, villages surveyed in Adilabad district showed 30–34% households reporting land alienation. In Gujarat's Tapi district, Pokharan village showed a massive level of land transfers, with only 10% land actually remaining with Adivasis. In Madhya Pradesh, Sheopur district was surveyed, wherein it was found that 70% households in one village were divested of their land. In Jharkhand, around 20–25% households surveyed reported losing their land. In Odisha, the study found about 25% households reporting loss of land in the surveyed villages of Koraput district. In Rajasthan's Udaipur district, villages surveyed showed that tribal landownership was down to 20–30% of landholdings. Indebtedness, poverty, market forces and weak implementation of legal safeguards are some of the reasons that contribute to the process of land alienation.

BRLF partners active in the Sahariya areas of Madhya Pradesh report that illegal methods are often employed by non-tribals to grab the lands of Sahariyas. Tribals, who are often impoverished and find it difficult to sustain themselves through their agricultural fields, start losing interest in farming and have to depend on migration or labour in the local market to make ends meet. This opens the door for outsiders who have settled in the area to grab their lands. Among methods employed by these land grabbers is to marry a singled or widowed Sahariya woman (often as a second wife) and slowly take control over her land. Once she dies, the husband stakes claim to the land.

The CES study cited earlier also points out how in Jharkhand, despite a restoration mechanism in place, very little land actually gets restored to tribals. The study quotes figures from the annual report of the Department of Land Resources (DoLR) of GoI to show the extent of alienation and the lack of remedies for the tribals. Table 4.5 shows, based on this data, that 42.46% of the cases disposed of by courts for restoration or reversal of land alienation are rejected and only around 49% of such cases are decided in favour of STs.

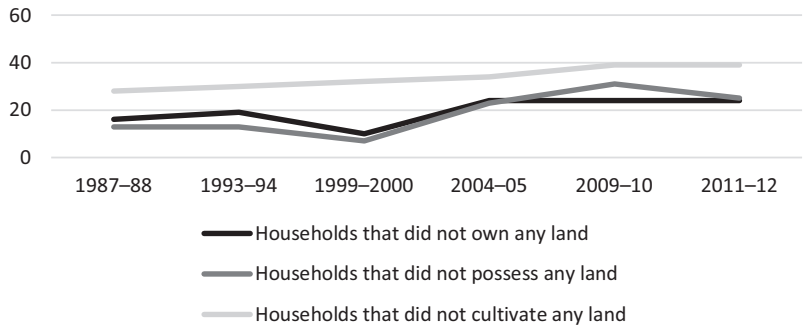

Figure 4.5 Adivasi households which do own, possess or cultivate land in rural India
Source: based on data from different survey rounds of the NSSO cited by Karat and Rawal op. cit.

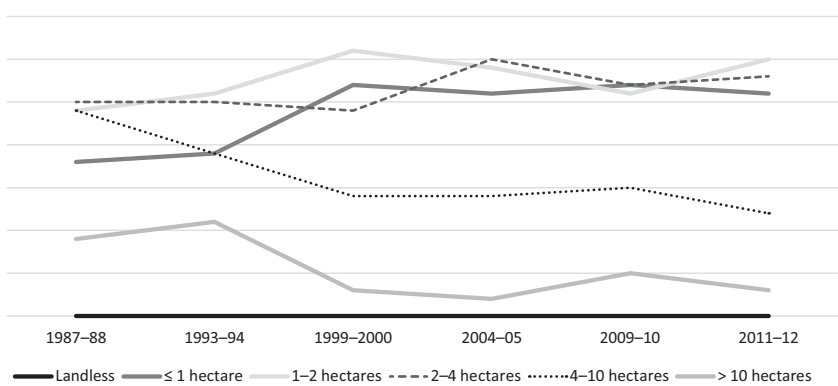

Figure 4.6 Share of land cultivated by Adivasis in different land-size categories
Source: based on Karat and Rawal, op. cit.

Karat and Rawal[27] also cite data from the NSSO's various survey rounds to show how the share of Adivasi households who do not own, possess or cultivate land has gone up since 1987–88. Figure 4.5 shows this as a graph.

The study also finds evidence of a decline in the share of land cultivated by Adivasi households in the larger landholding sizes of four hectares or more (Figure 4.6).

Similarly, the share of Adivasi households in the landless category seems to be on the rise whereas the share in other land size categories shows a decline (Figure 4.7).

Tardy FRA Implementation

The FRA was envisaged to be a route wherein the historic injustice meted out to tribals could be redressed. However, this does not seem to be happening

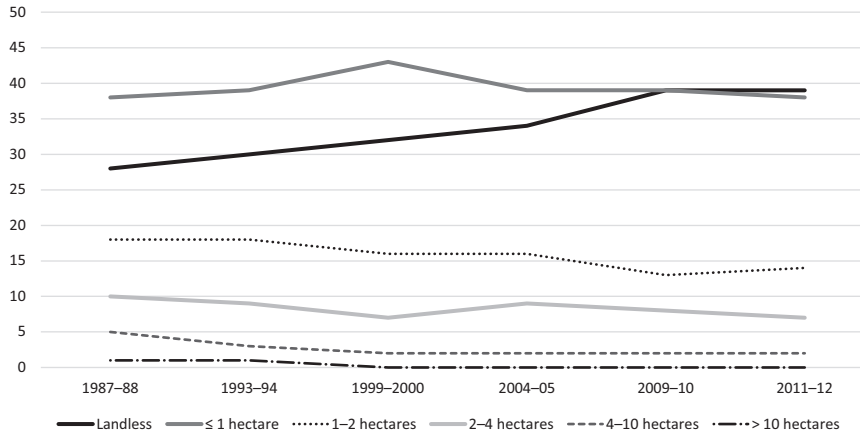

Figure 4.7 Proportion of Adivasi households in different size-classes of operational landholdings of Adivasi households, rural India

Table 4.6 Tribal Land Alienation and Restoration (2007–08)

State	*No. of cases filed in court*	*Cases disposed of by court*	*Cases rejected*	*(4)/(3) %*	*Cases decided in favour of STs*	*(6)/(3)%*
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*
Andhra Pradesh	65,875	58,212	31,737	54.52	26,475	45.48
Chhattisgarh	47,304	46,807	NR		21,348	45.61
Gujarat	20,704	19,819	497	2.51	19,322	97.49
Jharkhand	5,382	1,362	283	20.78	1,079	79.22
Madhya Pradesh	53,806	29,596	29,596	100.00	NR	
Maharashtra	45,634	44,624	24,681	55.31	19,943	44.69
Odisha	105,491	104,644	43,213	41.30	61,431	58.70
Rajasthan	2,084	1,257	53	4.22	187	14.88
Total	**346,280**	**306,321**	**130,060**	**42.46**	**149,785**	**48.90**

Source: Calculated from data in the annual report of the DoLR 2007–08, GoI, as cited in Centre for Equity Studies (ibid.).

since the actual implementation of the FRA is quite weak on the ground. There are many claims which are rejected and there is also reason to believe that the process of deciding on claims is not community-based. Table 4.6 shows the progress on FRA individual titles as reported by the Ministry of Tribal Affairs (MoTA) to the Prime Minister's Office (PMO).[28]

As Table 4.7 shows us, there is a very high rejection rate for FRA claims. In Madhya Pradesh, only 30% claims have been accepted and titles distributed.

Table 4.7 FRA Individual Claims Received and Titles Distributed as on 31st January 2018

State	*Individual claims received upto 31st January 2018*	*Titles distributed upto 31st January 2018*	*%*	*Extent of forest land for which titles distributed (acres)*	*Average per title (acres)*	*Average per title (ha)*
Andhra Pradesh	170,305	86,599	50.85%	208,900	2.41	0.98
Chhattisgarh	855,238	391,692	45.80%	832,797.8	2.13	0.86
Gujarat	182,869	81,546	44.59%	128,497.15	1.58	0.64
Jharkhand	99,224	54,458	54.88%	98,265.22	1.80	0.73
Madhya Pradesh	576,944	221,455	38.38%	802,524.64	3.62	1.47
Maharashtra	352,950	106,898	30.29%	577,026.2	5.40	2.18
Odisha	606,981	412,410	67.94%	614,631.26	1.49	0.60
Rajasthan	73,455	37,317	50.80%	56,827.85	1.52	0.62
Telangana	183,252	93,639	51.10%	300,284	3.21	1.30
West Bengal	131,962	44,444	33.68%	21,014.27	0.47	0.19
Total	3,233,180	1,530,458	47.34%	3,640,768.39	2.38	0.96

Source: Ministry of Tribal Affairs (2017)

While Odisha has a better strike rate, it too has a fairly high rejection rate. In other states, the acceptance rates vary between 33% and 55%.

In addition to this data, reports from the field clearly indicate a very tardy implementation of the FRA. These are also borne out by other studies and reports.[29] According to activists working with Sahariyas in Madhya Pradesh for the last three decades or so, almost all Sahariyas have some individual claim or the other on forest lands. However, very few are entertained because of various procedural issues – among them is an insistence by the forest department on a "proof" of occupation of the land dating back to the pre-cutoff period. Gram Panchayat or Gram Sabha resolutions are not entertained as proof.[30] The process seems to have been hijacked by the forest department, with the key nodal agency, the MoTA, playing a secondary role. Very often, the claims are rejected without even any information to the claimant regarding the reason for rejection. The forest department has claimed a kind of "veto" role for itself whereas it is only one of the stakeholders involved in the process of decision-making:

> *The law lays down a clear three-stage process for recognition of people's rights. It also defines what constitutes admissible evidence. The Forest Department has a role at the district and sub-divisional levels, but only as one of the parties involved. But the department has made every effort to give itself illegal veto powers to deny rights. In most states the department is refusing to be present at the time of verification by the Forest Rights Committee, and then demanding that the claim be rejected at the screening stage as they did not attend.*[31]

MGNREGA Performance

MGNREGA is not only a safety net, providing guaranteed employment for rural families in need of work, but it is also positioned as a programme which directs public investment into the lands of the very poor in order to raise their levels of agricultural productivity (which are abysmally low in the rainfed tribal drylands as compared to irrigated areas) through creation of water infrastructure. Seen thus, it is an opportunity to ease the constraints facing tribal dryland farmers and realize their true potential.

Data show that the actual performance of MGNREGA in these districts leaves much to be desired. We could see the total labour days worked by each household as estimated through our sample survey data as an unfulfilled demand for MGNREGA work. The sample survey reports that very few households were able to get work under MGNREGA. Also, the actual requirement or demand for work was much above that reported by the MGNREGA MIS, and consequently there was unmet work demand (Table 4.8).

The pathetic performance of Pohari is explained by the fact that job cards were widely reported to be held by non-beneficiaries and influential people

Table 4.8 MGNREGA Employment on the Basis of the Survey

Block	*No. of families in sample survey*	*Registered families*	*Households with job cards*		*Households which got work*		*Total person-days created during the year*	*Average person-days 2012–13*
			No	*%*	*No*	*%*		
Karahal	111	111	68	62%	49	44%	1,715	35
Pohari	150	150	59	39%	18	39%	360	20
Ghatigaon	114	114	57	50%	22	38%	676	31

Source: Calculations based on survey data.

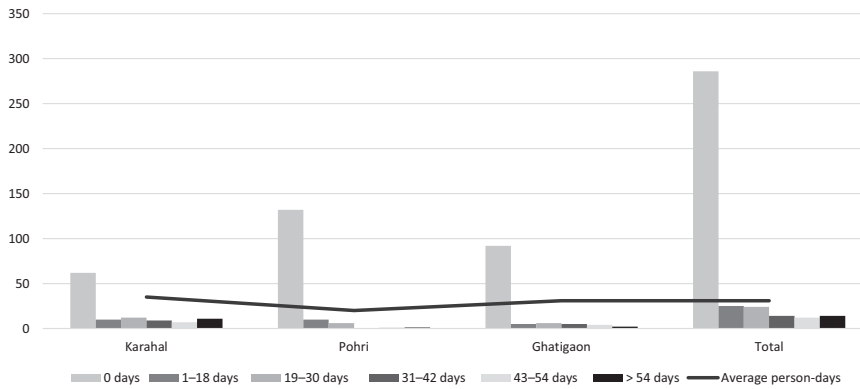

Figure 4.8 Households grouped by employment days

Source: based on Survey Data.

in the panchayats. The report refers to several instances of bogus work entries in the MIS of people who have job cards but do not work as menial labour.

Figure 4.8 shows the provision of employment under MGNREGA for surveyed households. It is clear that most of the households received negligible benefits under the act. Maximum households did not receive any employment benefit. Amongst those who did get work, the maximum number were in the categories 1 to 18 days and 19 to 30 days. The extent to which this employment falls short of what is required by the Sahariyas can be seen through a comparison between the extent to which they are forced to sell their labour in the labour market and the extent of labour employment per household provided by MGNREGA.

We recapitulate here the discussion in the previous section on participation in the labour market. Table 4.9 summarizes the extent to which average

Table 4.9 Projected Labour Market Participation in Sahariya Households Across Size Groups of Land

		Labour days (Total)	*Migration days*	*Local labour days*
Landless	**Landless**	178	37	141
Marginal	**Below 0.5**	142	37	105
	0.5–1.0	133	35	97
	Total marginal	136	36	100
Small	**1.0–2.0**	118	34	84
	Total small	118	34	84
Semi-medium	**2.0–3.0**	95	28	67
	3.0–4.0	74	24	51
	Total semi-medium	88	27	62
Medium	**4.0 - 5.0**	66	23	43
	5.0 - 7.5	49	16	33
	7.5 - 10.0	39	12	27
	Total medium	55	19	36
Large	**10.0 - 20.0**	38	11	26
	20.0 & above	36	11	26
	Total large	36	11	25
All classes	**All classes**	**115**	**32**	**83**

Source: Survey data.

Sahariya households in different land size categories are forced to participate in the labour market locally or as migrants.

Given that the average person-days of employment in the same year in the block was around 40 (as reported in the study, drawn from MIS data), we could say that about 75 person-days of actual MGNREGA demand was unmet in the area. Since MGNREGA employment is restricted to 100 days, it would be able to satisfy only 60 of these 75 person-days.

If this were projected to all ST registered households (22,780 such households as per MIS data for the year), it would mean an additional expenditure of ₹17.8 crores in these three blocks at ₹130 per day of work. The impact of this would be of course provision of employment. It would also mean a floor on wages,[32] especially on wages of women workers,[33] and much more humane employment nearer home, especially for women. Going further, if investments are directed properly, it would also result in increases in agricultural productivity and rural incomes, and eventually a decline in the dependence on the employment guarantee itself.

However, the composition of expenditure between 2012–13 and 2014–15 remained overwhelmingly tilted in favour of roads with less emphasis on water conservation, land development and development of irrigation facilities for the SC/ST/IAY/BPL families as Figure 4.9 shows.

The strength of MGNREGA is that while it creates short-term employment for those in need of work, the same employment can be treated as

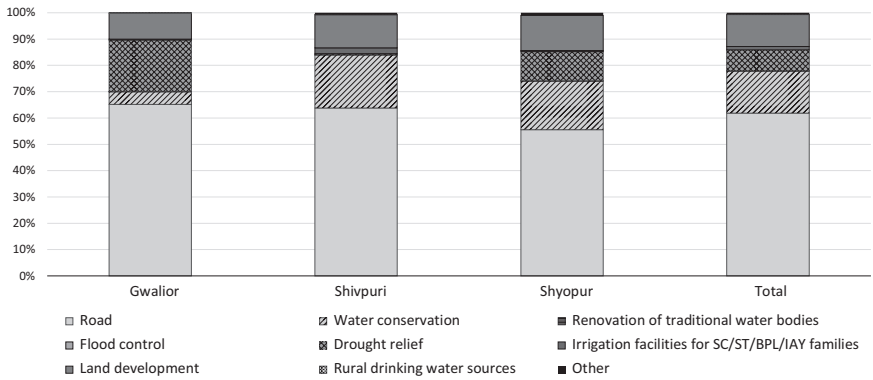

Figure 4.9 District-wise composition of MGNREGA expenditure

Source: based on MIS data.

an investment in the creation of assets for the rural poor which pulls them sustainably out of poverty.[34] For this MGNREGA expenditure needs to be directed towards priority areas as outlined in Schedule VI of the MGNREGA. Employment in labour-intensive natural resource management, water conservation and soil improvement works creates work in the short run and brings benefits of increased agricultural productivity and restoration of the ecological balance in the medium-to-long term.

The Road Ahead

The preceding discussion is important in that it underlines the role played by land and water as first-level building blocks in the lives of Sahariyas and other adivasis. In the absence of either or both, the dependence on the labour markets will be magnified. Further, this dependence will be on terms which are deeply detrimental to the tribals.

Given the levels of displacement and separation from their lands, it would seem that tribals are being brought to the brink through forces and circumstances which are far beyond their control. Given this, it is hard to imagine that their uneasy conversion into an unwilling proletariat is either capitalist development or worst still aspirational. The fact is that the process of development, in which the state has played a role along with market forces, has actually alienated the tribals from their land, displaced and brutalized them. These historic injustices need to be set right through a series of interventions at the earliest.

Here, we outline two scenarios which we have worked out on the basis of our regression models presented earlier. The first is the impact of maximizing irrigation through MGNREGA leverage and the other is the impact

of some redistribution of land (on the lines of the FRA) on labour market dependence.

Scenario 1: Labour Market Dependence With Maximized Irrigation

We carried out an exercise to see the impact of a possible rise in irrigation intensity. That is if all land across all land size categories was entirely irrigated, what would the impact be on labour market dependence of tribals in the Sahariya geography of Madhya Pradesh? This issue is important because a well-implemented MGNREGA with emphasis on removing the constraints on tribal agriculture and raise its productivity could well be a source of stabilized agricultural incomes. If so, it should reflect in a decline in the dependency on labour markets.

The results of our simple exercise are shown in Figure 4.10. The graph shows the possible percentage decline in the shares of migration income, local labour income and the sum of these two components in case 100% irrigation was provided to all households through appropriate MGNREGA investments.

The fall in dependence on migration and local labour incomes is marginal and small farmer categories, with the fall in migration share being more prominent. The fall continues to be positive in the semi-medium and medium categories as well. It is negligible for the large and above classes, but that is because the dependence on these sources of income was nearly nil to begin with.

In terms of changes in all components of income, the Figure 4.11 shows the increase and decrease in relative shares of income.

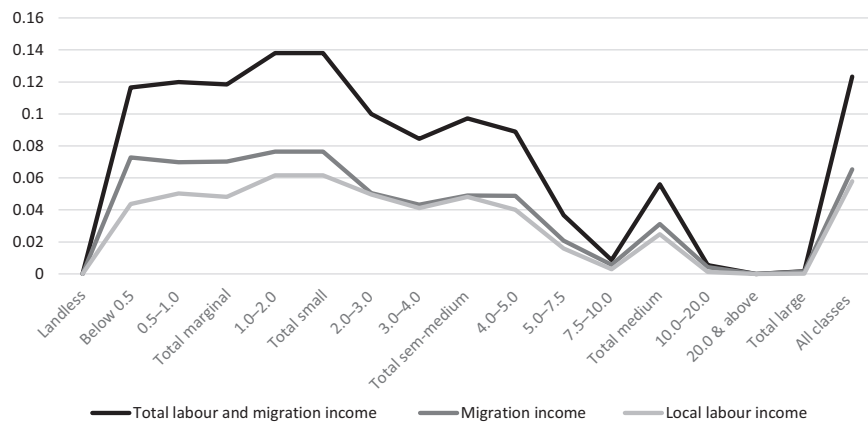

Figure 4.10 Projected drop in shares of labour components in household income across landholding size categories

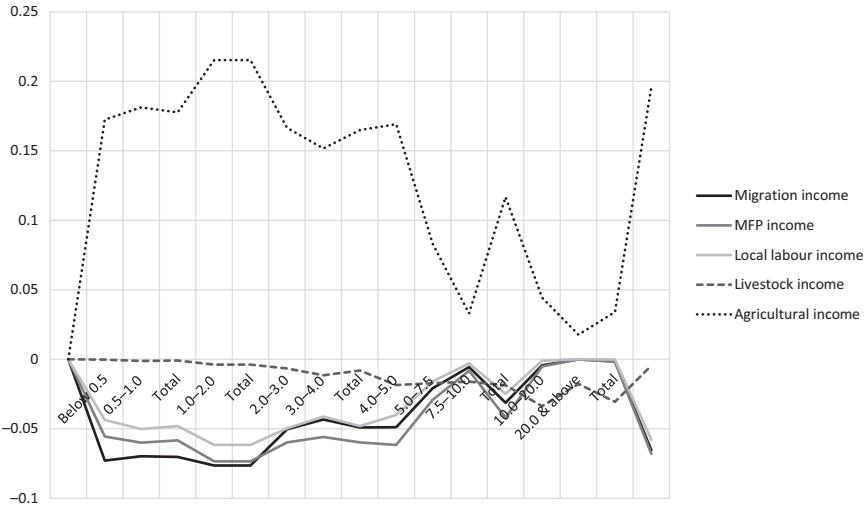

Figure 4.11 Projected changes in composition of household income

Scenario 2: Labour Market Dependence With More Land Assigned and Full Irrigation

We examine, on the basis of our compositional model what would be the impact of a (hypothetical) assigning of lands of about 1.5 hectares size to around 30% of households in the size groups of marginal to semi-medium groups along with the possibility of completely irrigating this land. As we have stated earlier, our field reports show that in these geographies, virtually all Sahariya households have a claim (stated or unstated) on land. For various reasons, these claims are either not entertained or never expressed. In this sense, the assumption of 30% households getting additional land is not exaggerated. Furthermore, the figure of 1.5 hectares of additional land is based on the average size of claims passed in Madhya Pradesh (see Table 4.6).

Figure 4.12 shows that with some public investment in irrigation which could be easily leveraged through MGNREGA[35] and a better implementation of claims under FRA would have a beneficial impact in that it would lead to a drop in dependence on labour incomes and increase in dependence on agricultural incomes.

These are only the first steps that need to be taken to improve the agricultural situation. Other practices which need to be introduced systematically in the tribal drylands of India include soil health improvement; sustainable and low energy-intensive, non-pesticide agriculture; improvement in sowing and cropping practices (e.g. line sowing, SRI, crop diversification,

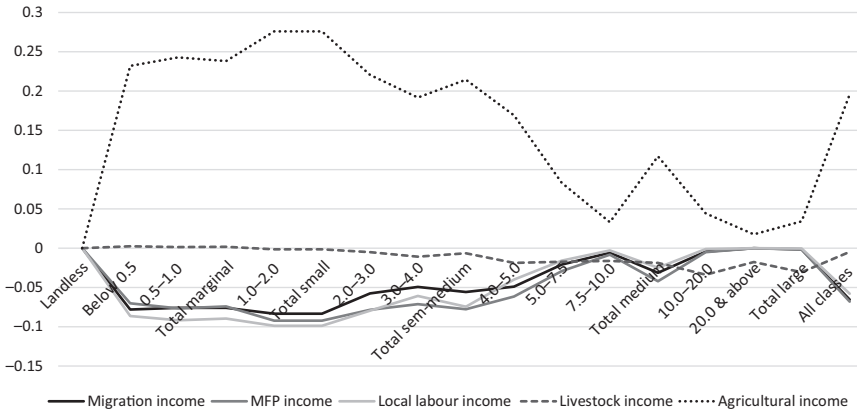

Figure 4.12 Income share changes if agricultural land is assigned and 100% irrigation is provided to some of the households

intercropping, drought-resistant varieties of seeds), horticulture and agroforestry; organizing small and marginal farmers into producer organizations and similar collectives to maximize returns from the market; pricing and policy support to dryland crops. Equally important is to diversify livelihood options in these tribal rainfed areas to incorporate more options for livelihoods, such as backyard poultry, pisciculture and dairy.[36]

Impact on Labour Market Participation and Migration

We have estimated the impact that properly directed MGNREGA investments and assigning of lands under FRA will have on the participation of Sahariya households in the labour market. We note that labour days (worked locally and in migration) can drop significantly if full irrigation and more land are provided (see Figures 4.13 and 4.14).

What we see here is borne out by qualitative evidence from the ground. More importantly, we need to understand that irrigation and land are only two important causal factors. It will be possible to see a greater impact if other factors such as soil health improvement, land development, lowering of agricultural cultivation costs, market linkages and produce aggregations are incorporated in this somewhat rudimentary model. If we include the impact of these factors, we will see a still greater drop in labour market operations.

In conclusion, we would like to make a strong case for investments in land and water through the route of MGNREGA and strengthening of legislation such as the FRA. If this route is adopted, much of the distress migration that takes place in the tribal belt can be reduced. There may still be

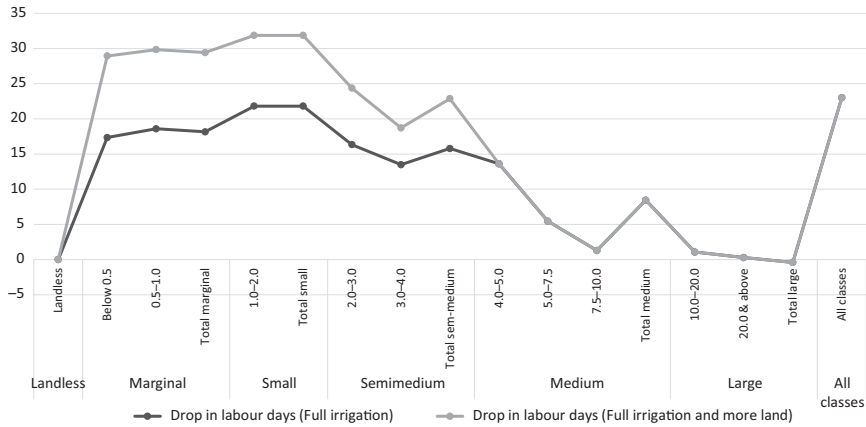

Figure 4.13 Predicted drop in labour days worked with full irrigation and more land

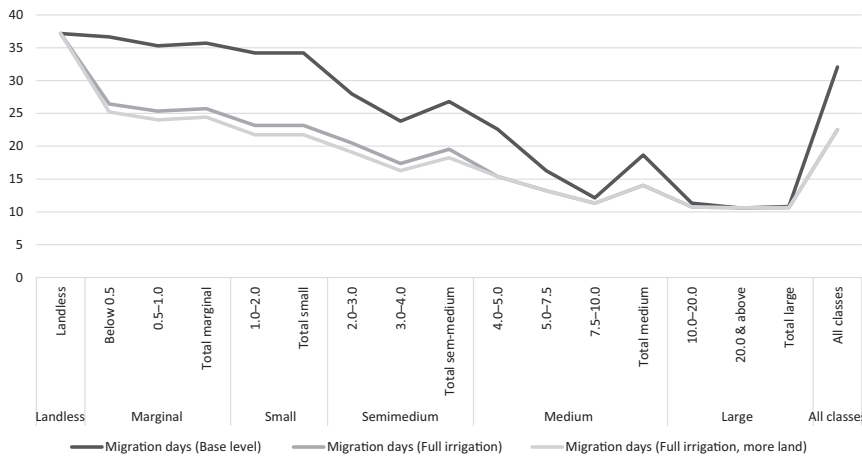

Figure 4.14 Predicted drop in migration days with full irrigation and more land

some migration or selling of labour, but the terms of trade will tilt decidedly in favour of the workers, as has been the experience of many civil society organizations working on the theme of watershed development.

Conclusions: Making of Urban Underclasses and Industrial Serfs

The continuing plight of these footloose tribal labouring poor over the last two decades has been contributing in reproducing them as humans doomed

to join the sprawling processes of rapid urbanization. They are raw constituents only there to be consumed, battered to a smothered existence to feed into creating urban glitter that so conspicuously glares you in face while on a visit to these regions. It could be said that this presents an interesting paradox that is so vividly expressed in the ever-widening gap between rich and poor in these regions, incessantly and audaciously celebrated by the everyday harlequin rhythms of these burgeoning urban spaces. What is noteworthy to understand in the seasonal mobility patterns of these tribal communities is the fact that the more benign patterns of seasonal migration for agricultural work give way to more urban and industrial work routines that are both alien and disarming to the capability set of cultural and natural practices that have been endogenous to the existence of these communities nested in their specific ecological habitats.

In the context of a rapidly transforming India, what needs to be understood is the manner in which subordination, exploitation and control of labour take new forms that are a combination and an ingenuous adaptation of the older forms of control and bondage contextualized to new conditions of capitalism. It could be argued forced (seasonal/prolonged distress/displacement) mobility is one of the significant strategies by which such labour pools are reproduced with uncanny regularity. The spatial variation between regions and of rural–rural and rural–urban between the peripheral underdeveloped regions and the more urbanized and industrial regions are critical conditions that sustain it. It has been noted while mapping the world of unorganized poor in India, that "capitalism is not dissolving this matrix of social institutions but reconfiguring them slowly, unevenly and in a great diversity of ways" (White and Gooptu, 2001, pp. 89–118, 90).

It is necessary to comprehend the reproduction of "vestiges" of older forms to better understand processes internal to the new conditions of capitalism. This reveals a kernel that is in continuity and rests upon older forms of subjugation. In fact, the manner in which the older forms are incorporated in nature of labour subordination and exploitation in conditions of contemporary capitalism exposes the belief propagated by capitalism that it is based on free and dignified labour. This offers useful insights into understanding survival realities of footloose labour their quest for aspirations and new opportunities as a chimera. It has been observed that "debt bondage is a combination of 'traditional' and 'modern' factors, heterogeneous with a continuum of situations". It is interesting to observe that in India debt bondage historically originated primarily as a rural phenomenon that was characterized by a whole set of relations of rights and obligations between the masters (who had majority of land) and their dependents (who had practically no rights or only marginal lands to till) under a system of hierarchy and interdependence between castes (Guérin et al., October 2004, pp. 9–10). With ongoing urbanization and industrialization, the old agrarian relations of labour servitude morph into the changing conditions and nature of work.

Breman has suggested "neo-bondage" as a more appropriate term that captures the experience and fate of "footloose labour" tied to a "cycle of production" that is seasonal and operates in different ways like a combination of "advanced payments and postponed payments" (Breman, 2013a, pp. 343–345). Arguing that "labour bondage is not likely to disappear when economic growth is sustained at its current rate of increase", Breman locates the continuation of this practice in the ongoing restructuring of capital and suggests that "the emergence of neo-bondage is strongly connected to the reinforcement of the casualization. . ., informalisation of employment and reflects the increased monetisation of commodity exchanges and of social relationships" (Breman, 2008, pp. 83–90, 86).

In keeping with this perspective, the aim is to understand and "envisage a crude and primitive world with its moments of tragedy"(Bloch, 1962, p. 264). In an understanding of classical (mostly pre-industrial) versions of serfdom, the defining attribute is being tied to land and master. The concomitant attribute that, by default, grips the serf is the lack of any new opportunities to learn new skills. It could be said that in modern times, especially after liberalization, there is a transition to a bondage that is more rooted in the structures of capital.

In proposing the term industrial serfs, there is an effort to delineate the contours of the "age old contrast between freedom and servitude", to see "what it received from the past, as if passing it through a prism, and transmitted it to succeeding ages" (Bloch, 1962, p. 279).

Although the term "skills" is used to refer to a wide range of attributes, in practical terms, the term used is marketable skills, which commonly refers to any skill/expertise/ability that has a market value, that is which has the potential of being utilized or generates income/employment. According to the NSSO, "any marketable skill, whether acquired through formal or informal means, irrespective of whether it is being marketed or not, whether the intention is to market it or not, is considered a skill" (Sengupta, 2009, p. 189).

In sharp contrast to this benign definition, new structures of capitalism seem to be directing most efforts to impart skills to meet needs of the formal sector's demand for a steady and cheap labour supply, with limited efforts to provide a framework to move up the skills ladder, while also raising productivity and output. The paradox of human condition that this restructuring of capital reproduces is that although the casual migrant labour is footloose, it is chained by the fate of being kept at survival thresholds with little or no opportunity of skill enhancement. The bondage is reinforced on a regular basis by strong segmentation of streams for migration.

In pockets where a degree of industrialization has taken place, the wide practice of daily commuting has offset the need for long-distance distress migration to distant areas. It needs to be remembered that this non-agricultural wage opportunity is of casual labour that sustains and

reproduces the status of being unskilled and occupying the bottom rung of the workforce contributing to local conditions of in situ economic growth.

Informality arranged by mobility patterns then as a condition becomes the defining attribute of this capitalism. The "concept of informality does not only concern labour but also intrudes into the domain of politics and governance" (Breman, 2013a, p. 121).

There is also the question of developing norms and systems for the informal sector, which accounts for the lion's share of this market. With a few exceptions, the market is unwilling to acknowledge the contribution of these actors by way of paying a premium for skills or certification. In fact, the emergence of the dominant discourse on marketable skills often justifies itself as an inevitable by-product of the new conditions of production and reproduction of capital. It is characterized by multiple layers of subcontracting, exploitative payment structures and dehumanized working conditions for those who help build and maintain the city, thereby rendering suboptimal solutions for both the labour force and the economy.

It is in this context that we need to understand the world of small and marginal farmers, agriculture labourers who today inscribe the world of labour at drift, fragmented, unskilled and pauperized, those who are referred to as "internal migrants", a category that is politically safe and by that virtue harmless. The pauperization of the habitats of that world has led to the creation of the conditions in which labour is being harnessed in a most iniquitous manner by the emerging capitalist system today.

The nature of such a process should then, inevitably, lead to a major political and societal crisis, where the edifice of urbanization, driven by an economy riding on debt, may totter. It is here that questions that were posed some 12 decades ago become once more seminal, Where to begin and what is to be done?

Notes

1 The pernicious sway of capital in creating cheap labour pools and sustaining streams of eviction to brick kilns and construction industry mostly in south and west India can be gauged from the fact that investments in the entire operation are more than the state outlays for MGNREGA, a primary response of ameliorative state action in these regions to abet distress migration (*Source*: estimates of CSOs and human rights activists).
2 Census of India (2011): Drop-in Article on Census: No.8 – Migration.
3 Lewis, W. Arthur (1954): *Economic Development With Unlimited Supplies of Labour*, The Manchester School. University of Manchester. Manchester.
4 Although the "Lewis Model" encompasses a range of low-productivity sectors besides the farm sector as well, we are focussing in our chapter on the farm sector.
5 Leading to discussions of earlier times on "brain drain", that is exodus of highly skilled professionals, scientists, experts to other countries in search of better professional opportunities and greater livelihood security.
6 Unless, perhaps, the thrust of this body of argument is to deny any kind of distress migration itself.

7 A television news channel discussion on the subject of making prostitution legal, several panelists were at pains to point out that women who are in the flesh trade are exercising a choice, even if they took to the trade out of utter poverty and deprivation. Many distress migrants from western Odisha, for example, also feel they are exercising a choice when they migrate to brick kilns to work in inhuman conditions (Ambasta, 2014, 2015).
8 See for example Borguinon (1981).
9 It is difficult to imagine that employers in urban centres would find it lucrative to employ labour which costs more because the state forces them to apply labour laws at their employment venues.
10 See Rodrik.
11 In fact, it can be argued that this too is a form of "Make in India", wherein Indian producers find it lucrative to carry on farming and contribute to food self-sufficiency, employment and growth.
12 This observation is based on fieldwork on the status and challenges of footloose migrant workers in tribal-dominated blocks in the states of Odisha, Jharkhand, Chhattisgarh, Madhya Pradesh, West Bengal, Gujarat, Rajasthan and Maharashtra.
13 Mahaling, K. (n.d.): Migration Study Report of Golamunda Block Of Kalahandi District Of Odisha. Retrieved on 10th August 2021 from www.shram.org/uploadFiles/140414070116.pdf.
14 Brijendra Singh (2013): *Sahariya Samudaya Ki Khadya Evam Aajeevika Suraksha Mein MGNREGA ke Prabhav Aakalan Ka Adhyaya*, National Consortium of Civil Society Organizations on MGNREGA (mimeo), Samaj Pragati Sahyog.
15 As indicated in terms of the number of days of work performed by these households in the labour market, either locally or outside as migrants.
16 Aitchision, J (1982): "The Statistical Analysis of Compositional Data", *Journal of the Royal Statistical Society. Series B (Methodological)* vol. 44, no. 2, 139–177.
17 The package "Compositions", Version 1.40–1, by K. Gerald van den Boogaart, Raimon Tolosana, Matevz Bren, (www.stat.boogaart.de/compositions). The package performs the task of calculating appropriate log ratio transforms to carry out the regressions and inverting them back for predictions on the basis of the fitted model.
18 R Core Team (2018): *R: A Language and Environment for Statistical Computing*, R Foundation for Statistical Computing, Vienna, Austria. www.R-project.org/
19 The regression model is summarized at Annexure 1.
20 Agricultural Census data suffer from several drawbacks. They do not capture data on landlessness. Nor do they have data on household ownership of land, relying on operational holdings instead. See Rawal (2013) for a discussion of these shortcomings. We are using this data set since we are interested in examining land size group-wise irrigated area and cultivated area at a more aggregated level.
21 We have used the district-level data. Further see the NSS Report No. 571.
22 For Ghatigaon, we have had to use Gwalior (grid) data since data on the block is not listed on the website.
23 See chapter on "Improving Adivasi Access to Energy and Infrastructure" in this report for a more detailed discussion.
24 See the chapter on Energy and Infrastructure of this report for details.
25 Ministry of Tribal Affairs, Government of India (2014): *Report of the High Level Committee on Socio-Economic*, Health and Educational Status of Tribal Communities of India, Government of India, New Delhi.
26 Centre for Equity Studies (2016): *The Extent and Nature of Individual Tribal Land Alienation in Fifth Schedule States in India*, Centre for Equity Studies, New Delhi.

27 Karat, Brinda and Rawal, Vikas (2014): "Scheduled Tribe Households: A Note on Issues of Livelihood," *Review of Agrarian Studies*, vol. 4, no. 1. Retrieved on 10th August 2021 from www.ras.org.in/scheduled_tribe_households.
28 These are reported on a monthly basis by the MoTA to the PMO. Monthly reports are available on the MoTA website.
29 See for instance Suman, SK (2010): Gaps in the Implementation of Forest Rights Act- 2006. Retrieved on 10th August 2021 from http://terisas.ac.in. See also Bijoy, CR (2010): Taking stock of Forest Rights Act, Planet Earth, Retrieved on 10th August 2021 from www.researchgate.net/publication/262261003.
30 Even though the tribals may have paid a penalty or a fine to the Forest Department at some point in their lives, there are no records of this and hence no proof.
31 Dandekar, Ajay and Chitrangada Choudhary (2010): *PESA, Left-Wing Extremism and Governance: Concerns and Challenges in India's Tribal Districts, Report Commissioned by the Ministry of Panchayati Raj*, GoI, New DELGI, Retrieved on 10th August 2021 from www.researchgate.net/publication/265000754.
32 Studies have shown how the MGNREGA acts as a floor on wages, even if the proportion of employment it provides is small compared to other sources of rural employment, thus increasing both nominal and real wages. For a summary, see Ministry of Rural Development (2012): *MGNREGA Sameeksha – An Anthology of Research Studies on the Mahatma Gandhi National Rural Employment Guarantee Act, 2005 [2006–2012]*, Orient Blackswan, Hyderabad.
33 See Ghosh, Jayati and Chandrasekhar, CP (2011): Public works and wages in rural India, *Business Line*, Retrieved on 10th January 2021 from www.nregaconsortium.in/download/articles/jayati%20and%20chandrashekhar%2011-jan-11.pdf.
34 This is what MGNREGA has traditionally emphasized (see Schedule VI of the Act, MGNREGA Operational Guidelines). This aspect is also what has been correctly emphasized by the MoRD's recent thrust on Mission Water Conservation.
35 MGNREGA has always placed emphasis on creating durable assets for drought proofing and flood protection. This has received renewed thrust recently through the Ministry of Rural Development's "Mission Water Conservation" programme (see draft framework document retrieved on 20th January 2021 from: http://nrega.nic.in/netnrega/writereaddata/Circulars/Mission_water_conservation.pdf).
36 See also Samaj Pragati Sahayog (2016): *Infrastructure for Climate Resilient Growth in India through MGNREGA*, Scoping Study carried out for Department for International Development (DFID), India (mimeo), for a detailed discussion on livelihoods options open for the rainfed tribal drylands of India.

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5 Improving Adivasi Access to Energy and Infrastructure

Pramathesh Ambasta[1]

Background

Despite more than two decades of impressive GDP growth, India's record in terms of critical social development indicators leaves much to be desired. For one, this growth has remained confined to enclaves of prosperity surrounded by vast hinterlands of deprivation. The tribes of India, who make up only 8% of its population have taken the brunt of exclusion, and tribal communities occupy the lowest rungs of deprivation, faring poorly on all counts of social infrastructure as well. Infant mortality rates, Under-5 mortality rates, illiteracy levels for both males and females, levels of malnutrition and anaemia in women and children are the highest for tribal groups as compared to other social groups.[2] In terms of income poverty, measured absolutely, the number of poor have increased for India's tribals as a social group between 1993–94 and 1999–2000. Measured in terms of the head count ratio or by the poverty gap index, the decline in poverty among tribal groups in India has been marginal as compared to other social groups.[3] As per the Census of India 2011, the tribal communities of India are the worst off in terms of human development indicators. Only 10% of tribal families have houses with concrete roofs, less than 25% have latrine within their premises and 50% have electricity in their houses.[4]

Poverty and distress are thus increasingly concentrated in the drylands of India and its hilly and tribal areas which are also home to violent expressions of discontent. In the list of "170 most backward districts including 55 extremist affected districts",[5] 118 are located in five big states – Bihar, Jharkhand, Orissa, Uttar Pradesh and Madhya Pradesh.[6]

The Growth, Poverty, Inequality Triangle

While social sector indicators are important in themselves, there is also a growing realization in economic thinking that inequities have a bearing on economic growth and that there are synergies between growth and (in)equality. In an initial situation of inequality (say, in terms of level of rural development or capacities), the impact of growth on poverty is

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likely to be muted.[7] Also, the poor remain poor because of lack of access to productive resources (say for instance due to imperfect credit markets or an unequal distribution of wealth),[8] which in turn inhibits their productive growth-oriented potential from being unlocked. Such persistent inequalities, it would seem, tend to make national income trends more volatile, shorten growth spells and lower growth rates in the medium term as well.[9] Thus, poor tribals are not simply passive receptors of growth but, as producers, are potential contributors to it, representing both a "slack" in the system and an opportunity, which, with systematic and well-directed investments could actually begin to contribute to the growth process itself.

It is not surprising that there have been positive correlations observed between the development of roads under PMGSY, for example, and growth in incomes of rural populations.[10] It has been estimated that an investment of ₹1 crore in rural roads has the ability to lift 1,650 persons above the poverty line.[11] While we may debate the precise numbers, such estimates provide some indicator regarding the direction of impacts from social infrastructure spending. Similarly, access to health and education lead to better and more productive human capital, which in turn has a positive impact on economic growth.

Inequities articulate themselves most clearly in the context of tribal societies where both in terms of output and input indicators, provisioning for infrastructure and energy has been lower than that of other groups, clearly leading to adverse impacts.

Data from the Rural Labour Enquiry reveal that the proportion of the landed among agricultural labour households is very high.[12] This is a reflection of the process of immiseration of the peasantry without a corresponding increase in dispossession and landlessness. The NSS 61st Round shows that in 2004–05, as many as 76% of the rural households in the country were marginal farmers (owning less than 1 hectare of land) and another 13% were small farmers (with landholding size between 1 and 2 hectares).[13] Thus, small and marginal farmers accounted for nearly 89% of the landholdings. An increasing number of these small and marginal landowners, operating low-productivity holdings are being forced to enter the labour market. If priority is given to raising productivity in the fields of these landed labourers (occupying an estimated 8 million hectares), it would be a major contribution towards sustainable direct poverty alleviation in India. Raising productivity of the land in turn means creating or improving access to infrastructure – power and energy for driving irrigation pumpsets for instance, roads to access markets, inputs and know-how, warehouses for storage, hospitals, schools and healthcare systems for better human capital, to name but a few.

These in turn would require that investments are directed at the poorest, most neglected parts of the country and that the capacities of these regions to absorb such investments are augmented.

Poor Access to Energy and Infrastructure

At the heart of the aforementioned symptoms, there are several gaps in access to resources which characterizes tribal society. These include *inter alia*, opportunities for livelihoods advancement, education and skills. Tribals are also at the receiving end of critical infrastructure gaps. These gaps are determinants of poverty and low human development as a result and are reflected in some key indicators summarized in the following.

1 Only 19.7% of tribal households have access to safe drinking water within their own premises, as compared to nearly 53% for general categories. The highest proportion amongst all social groups with a safe drinking water source away from home is that of tribals.[14]
2 While there has been an increase over 2001 in the share of tribal households using electricity for lighting, this share still remains far below that of the rest of the social groups in India.
3 An overwhelming 78% of tribal households are still dependent on firewood as the fuel for cooking, far above the average of other groups (44%).
4 Sanitation infrastructure is also poor, with 77% of tribal households reporting (Chandramouli, 2013, ibid.) that they do not have a toilet in ther premises and another 77% reporting that they do not have any drainage connectivity.
5 While institutional deliveries have increased post-NRHM, less than one-third of tribals in India have institutional deliveries.
6 Less than 40% of scheduled tribe households in India live in *pucca* houses (Chandramouli, 2013, ibid.). About 82% of tribal households live in houses with two rooms or less, with 48% living in houses with one or no room.[15]
7 Despite progress under the PMGSY, road length per 100 square kilometres were lower than the national average for the central Indian tribal belt as a whole.

A major (defining, some would argue) characteristic of tribal society in India has been enclavement. Tribals in India have historically tended to be located in pockets of concentration, surrounded by large non-tribal hinterlands, within which they are in a minority. Also, they have been geographically dispersed.[16]

Table 5.1 throws light on this enclave character of tribal society in India. It shows us that barring a few northeastern states, in other states with an LQ of more than one, and a high IC, tribals are in a minority. These are the states of Goa, Maharashtra, Jammu and Kashmir, Assam, Rajasthan, Gujarat, Madhya Pradesh, Odisha, Chhattisgarh, Sikkim, Dadara and Nagar Haveli, Tripura and Manipur. They are also found to be living in extremely difficult geographies, which are hilly and forested. This enclave character of

Table 5.1 Proportion of ST Population Across States and UTs

State	*Total population*	*ST population*	*ST population share*	*Index of concentration* *	*Location quotient* **
Punjab	27,743,338	0	0.00%	0.00%	0.00
Chandigarh	1,055,450	0	0.00%	0.00%	0.00
Haryana	25,351,462	0	0.00%	0.00%	0.00
NCT of Delhi	16,787,941	0	0.00%	0.00%	0.00
Puducherry	1,247,953	0	0.00%	0.00%	0.00
UP	199,812,341	1,134,273	0.57%	1.09%	0.06
Tamil Nadu	67,500,298	784,636	1.16%	0.76%	0.13
Bihar	104,099,452	1,336,573	1.28%	1.29%	0.14
Kerala	33,406,061	484,839	1.45%	0.47%	0.16
Uttarakhand	10,086,292	291,903	2.89%	0.28%	0.32
HP	6,864,602	392,126	5.71%	0.38%	0.64
Daman Diu	243,247	15,363	6.32%	0.01%	0.71
Andhra Pradesh	84,580,777	5,918,073	7.00%	5.71%	0.78
West Bengal	70,127,456	5,020,647	7.16%	4.84%	0.80
Andaman and Nicobar Islands	380,581	28,530	7.50%	0.03%	0.84
Karnataka	51,619,710	4,057,804	7.86%	3.91%	0.88
Goa	1,458,545	149,275	10.23%	0.14%	1.15
Maharashtra	99,931,960	10,380,560	10.39%	10.02%	1.16
Jammu and Kashmir	12,541,302	1,493,299	11.91%	1.44%	1.33
Assam	30,921,049	3,886,791	12.57%	3.75%	1.41
Rajasthan	68,548,437	9,238,534	13.48%	8.91%	1.51
Gujarat	60,439,692	8,917,174	14.75%	8.60%	1.65
Madhya Pradesh	72,626,809	15,316,784	21.09%	14.78%	2.36
Odisha	41,974,218	9,590,756	22.85%	9.25%	2.56
Jharkhand	32,988,134	8,645,042	26.21%	8.34%	2.94

(*Continued*)

Table 5.1 (Continued)

State	*Total population*	*ST population*	*ST population share*	*Index of concentration* *	*Location quotient* **
Chhatisgarh	25,545,198	7,822,902	30.62%	7.55%	3.43
Sikkim	610,577	206,360	33.80%	0.20%	3.79
Manipur	2,570,390	902,740	35.12%	0.87%	3.94
Tripura	3,003,015	1,138,844	37.92%	1.10%	4.25
Dadra and Nagar Haveli	343,709	178,564	51.95%	0.17%	5.82
Arunachal Pradesh	1,383,727	951,821	68.79%	0.92%	7.71
Meghalaya	2,966,889	2,555,861	86.15%	2.47%	9.66
Nagaland	1,978,502	1,710,973	86.48%	1.65%	9.69
Mizoram	1,097,206	1,036,115	94.43%	1.00%	10.59
Lakshadweep	64,473	61,120	94.80%	0.06%	10.63
Total	**1,161,900,793**	**103,648,282**	**8.92%**	**100.00%**	**1.00**

Source: calculated from the Census of India (2011).

Notes:

* Index of Concentration (IC) is the percentage share of STs in the state to the total ST population in the country

** Location Quotient (LQ) is the share of STs in a state's population divided by the share of STs in the national population. An LQ of more than one means that the share of STs in the state is more than their share in the country.

tribal societies in India has meant their exploitation by a non-tribal axis of power. It is estimated for example that of the 256 districts with tribal concentration in India, nearly 237 are either hilly, or forested or dry and these together come to about 80% of the tribal population of the country.[17] This is not to say that tribal society itself is an undifferentiated, homogenoeus entity. In fact, the non-tribal axis of power uses sections within tribal society to further its ends.

The narrative of the tribal as distinct from the other can be seen to be self-fulfilling in India today, as it is tribal societies which have face the brunt of exclusion and have also paid for the development of the rest of India. An understanding of the issue of infrastructure and energy in the context of tribal India has to factor in this internal colonization. For this will explain several key gaps and anomalies which are observed.

Table 5.2 tells us that 14.58% of the population of the Central Indian Tribal Belt (CITB) states are STs. Seen together with the data in Table 5.1, we find that this 14.58% however forms 78% of the total tribal population in India.

Table 5.2 Tribal Concentration in the Central Indian Tribal Belt

State	*Total population*	*ST population*	*ST population share*
Andhra Pradesh	84,580,777	5,918,073	7.00%
West Bengal	70,127,456	5,020,647	7.16%
Maharashtra	99,931,960	10,380,560	10.39%
Rajasthan	68,548,437	9,238,534	13.48%
Gujarat	60,439,692	8,917,174	14.75%
Madhya Pradesh	72,626,809	15,316,784	21.09%
Odisha	41,974,218	9,590,756	22.85%
Jharkhand	32,988,134	8,645,042	26.21%
Chhatisgarh	25,545,198	7,822,902	30.62%
Total	**556,762,681**	**80,850,472**	**14.52%**

Source: Census of India 2011.

The Current Chapter

This chapter takes the aforementioned as its starting point. The enclavement of tribals will form the overall analytical framework for the chapter. The chapter starts by locating the issue of energy and infrastructure in the larger tribal context. It will analyse the nature and impact of government interventions and the reasons why there are gaps in infrastructure. This will specifically look into the areas of roads, electricity/power, drinking water, sanitation and irrigation. We will attempt to examine why there is poor infrastructural provisioning and what is the root cause of inequities. We will attempt to understand the role of state capacity and governance as possible explanatory variables. Studies relating to several flagship programmes show

that the capacities of particular states greatly impact the outcomes. Thus, for instance, a study of MGNREGA[18] demonstrates that the effective delivery of MGNREGA to the rural poor is severely impacted by the capacity of some of the poorest states to carry out the delivery expected of them. This section will analyse this aspect in terms of critical infrastructure like roads, electricity, drinking water, sanitation, irrigation and so on. Finally, it will attempt to shed light on what needs to be done.

Status of Energy and Infrastructure in the CITB

While data on rural India exist, it is difficult to get current data on tribal India with respect to infrastructure and energy. However, we have tried to get data on the relevant indicators at as disaggregated level as is feasible to understand patterns if any.

These are discussed briefly in the following pages.

Road Connectivity in Tribal Areas

Since 2000, the major government intervention in respect of better connectivity has been the *Pradhan Mantri Gram Sadak Yojana* or the PMGSY. The main objective of the PMGSY is to provide connectivity to all rural habitations by way of all-weather roads, along with necessary culverts and cross-drainage structures. The proposed targets were to cover all habitations with more than 1,000 persons in the first three years and all habitations with a population of more than 500 persons by 2007 (the end of the tenth plan period). In respect of tribal (Schedule V) areas and hill states, the objective was modified to one of connecting habitations of 250 persons or more.

The PMGSY took to its task through a decentralized planning mode with district-level plans (the District Rural Roads Plan), which create a stock of rural roads already existing as the start-up point for the planning exercise. GoI has also set up an Online Management and Monitoring System (OMMS) so as to make monitoring transparent.

In what follows we see the progress of road connectivity in tribal states. We try and look at data at as disaggregated a level as is possible.

Table 5.3 shows the road length per square kilometre and per million population in the CITB states and the rest of India.

We see that average road length per unit area is lower than the all-India average and that of the non-CITB states. However, this is a small difference. In terms of road length per million people, the CITB states have done better, with Odisha, Madhya Pradesh, Jharkhand and Chhattisgarh leading.

If we look at the year-wise and state-wise progress (Figure 5.1), we find that the better performing states in terms of cumulative road length seemed to have peaked in the period 2009–10 to 2010–11. Rajasthan is the exception, peaking earlier in 2007–08. Thereafter, progress has been moderate.[19]

Table 5.3 Road Length and Per Capita Road Length in the CITB as of End of FY 2017–18

	Area	*Cumulative road length*	*Length/ 100 sq.km*	Population	*Length/ million population*
Andhra Pradesh	275,045	9,923.87	3.61	84,580,777	117.33
Chhattisgarh	135,192	24,624.16	18.21	25,545,198	963.94
Gujarat	196,244	10,890.42	5.55	60,439,692	180.19
Jharkhand	79,716	14,851.10	18.63	32,988,134	450.20
Madhya Pradesh	308,252	61,532.02	19.96	72,626,809	847.24
Maharashtra	307,713	23,407.39	7.61	112,374,333	208.30
Odisha	155,707	38,482.02	24.71	41,974,218	916.80
West Bengal	88,752	21,577.05	24.31	91,276,115	236.39
Rajasthan	342,239	7,083.83	2.07	68,548,437	103.34
Total CITB	1,888,860	212,371.86	11.24	590,353,713	359.74
Non-CITB	1,398,140	187,298.85	13.40	620,501,264	301.85
All India	3,287,000	452,510.19	13.77	1,210,854,977	373.71

Source: MIS of the PMGSY OMMS (http://omms.nic.in).

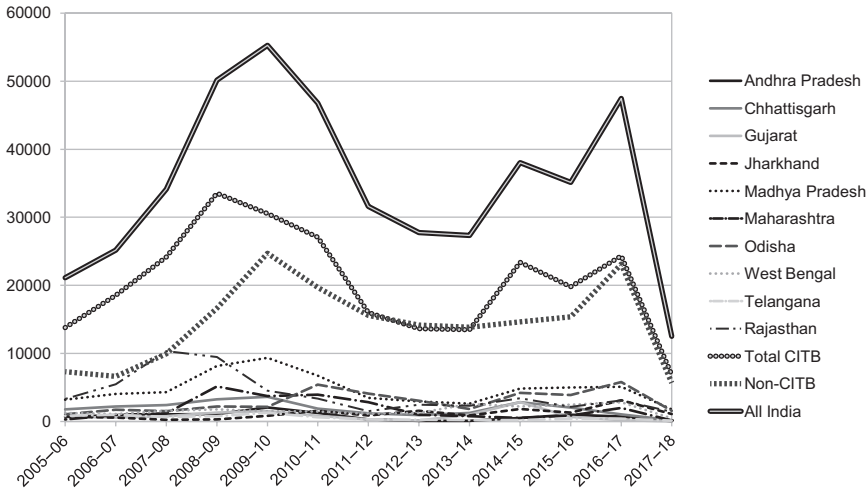

Figure 5.1 Road length under PMGSY

If we further look at the figures in a year-to-year growth comparison (Figure 5.2), we find that while there have been accretions to road length each year, the accretions have tended to be less than the previous years in most states after 2010–11, picking up again after 2014–15, only to slacken in 2016–17.

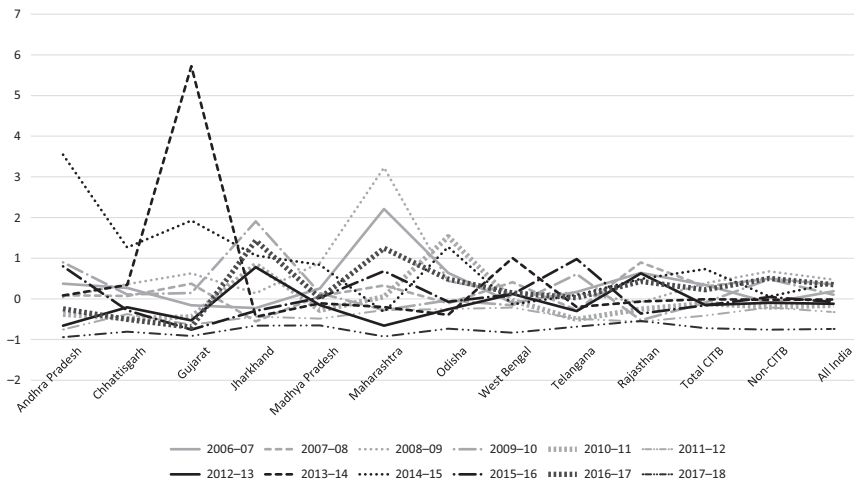

Figure 5.2 Road length (PMGSY) year-on-year growth percentage

In other words, the progress under PMGSY has been varied across years and also across states. The overall trend over time for all CITB states shows a decline in road length accretions across the years in question. The decline is perceptible in high tribal states such as Madhya Pradesh and Chhattisgarh, which is a cause of some concern, as it shows that the pace is slackening.

Table 5.4 gives details of progress made under road connectivity in terms of target versus achievement as at the end of June 2017. Madhya Pradesh, Andhra Pradesh, Maharashtra, Gujarat and Rajasthan seem to have done particularly well in terms of their achieving the road length targets. Gujarat, Maharashtra, Andhra Pradesh and Rajasthan, likewise, seem to have done very well in terms of share of target habitations connected. Overall, achievements have been high for all CITB states, except for Jharkhand, which has been behind particularly in terms of road length targets. The greater than 100% achievement in some of the states owes an explanation but none is provided in the OMMS. It would be useful to include the excess road length achieved in the target also, even in if retrospectively, in order to get over this. Since the targets themselves seem to be set on a yearly basis, the 100% achievement is not a reflection of achieving a total saturation of road construction in the state, in whichever way defined by the PMGSY. It simply shows whether the target for the year has been met or not. As Table 5.4 shows, tribal concentration districts are still the highest in terms of unconnected habitations. Putting this fact together with the declining trend means that greater effort is in order to connect tribal India.

Table 5.4 Cumulative Progress of Road Connectivity in CITB States and India (as in June End 2017)[1]

State	*Target*	*Achievement*	*%*	*Target habitations*	*Connected habitations*	*%*
Andhra Pradesh[2]	23,420	23,747	101	1,728	1,772	103
Chhattisgarh	32,632	27,181	83	10,506	9,035	86
Gujarat	9,658	12,523	130	1,548	3,017	195
Jharkhand	21,818	16,112	74	9,688	8,415	87
Madhya Pradesh	64,825	67,347	104	16,974	15,730	93
Maharashtra	21,916	25,619	117	1,081	1,220	113
Odisha	49,384	41,427	84	15,760	13,547	86
Rajasthan	47,438	62,795	132	9,216	12,444	135
West Bengal	27,584	23,511	85	13,547	13,461	99
Total CITB	**2,98,676**	**3,00,260**	**101**	**80,048**	**78,641**	**98**
Northeastern states	**44,232**	**42,932**	**97**	**12,818**	**13,380**	**104**
All India	**5,31,469.00**	**5,14,916.628**	**97**	**1,33,889**	**1,34,664**	**101**
Rest of India	**1,88,562**	**1,71,724**	**91**	**41,023**	**42,643**	**104**

Source: Calculated from Ministry of Rural Development, GoI website database (omms.nic.in).

Notes:

1 Length completed is of New Connectivity and Upgradation and of both PMGSY-1 and PMGSY-2 schemes. Habitations connected are of New Connectivity of PMGSY-1 only.
2 Andhra Pradesh and Telangana have been clubbed together because OMMS gives completed road length for Telangana but not targeted road length and habitations data before 2015–16.

The data given here are aggregated at the state level. The CITB states as a whole account for 59.7% of the habitations covered and 58.3% of the length completed. In terms of targets versus achievements, the CITB as a whole has performed at par with all India. However, the aggregate hides significant variations, with states like Madhya Pradesh, Gujarat, Maharashtra and Andhra Pradesh over-performing by going beyond their targets and states like Jharkhand, Chhattisgarh, Odisha and West Bengal performing below target. Given that these are states with significant tribal populations, this is a cause for concern.

Table 5.5 looks at the relationship between tribal concentration in terms of population at the district level and the share of unconnected habitations at the district level for the CITB states.

The cross-tabulation shows districts by share of tribal population and share of unconnected habitations. We find that in states with high tribal concentration such as Madhya Pradesh, Chhattisgarh, Jharkhand and Odisha, a majority of the districts belong to more than the 30% unconnected habitations category *and* more than the 8% tribal population category.

Table 5.5 Share of Unconnected Habitations According to ST Concentration at the District Level

State	*ST population share categories (%)*	*Unconnected habitations share categories (%)*				*Total*
		<10	10–20	20–30	>30	
Andhra	<8	53.85	23.08	0.00	0.00	76.92
	8–20	7.69	0.00	7.69	7.69	23.08
	>=20	0.00	0.00	0.00	0.00	0.00
	Sub-total	61.54	23.08	7.69	7.69	100.00
Telangana	<8	44.44	0.00	0.00	0.00	44.44
	8–20	22.22	0.00	11.11	11.11	44.44
	>=20	0.00	11.11	0.00	0.00	11.11
	Sub-total	66.67	11.11	11.11	11.11	100.00
CG	<8	0.00	0.00	0.00	8.70	8.70
	8–20	0.00	0.00	0.00	8.70	8.70
	>=20	8.70	0.00	4.35	69.57	82.61
	Sub-total	8.70	0.00	4.35	86.96	100.00
MP	<8	0.00	0.00	0.00	26.00	26.00
	8–20	0.00	0.00	0.00	30.00	30.00
	>=20	0.00	0.00	2.00	42.00	44.00
	Sub-total	0.00	0.00	2.00	98.00	100.00
JH	<8	0.00	0.00	0.00	12.50	12.50
	8 to 20	0.00	0.00	0.00	25.00	25.00
	>=20	0.00	0.00	0.00	62.50	62.50
	Sub-total	0.00	0.00	0.00	100.00	100.00
Odisha	<8	0.00	0.00	13.33	13.33	26.67
	8 to 20	0.00	3.33	0.00	20.00	23.33
	>=20	0.00	0.00	0.00	50.00	50.00
	Sub-total	0.00	3.33	13.33	83.33	100.00
WB	<8	0.00	5.00	30.00	20.00	55.00
	8–20	0.00	0.00	0.00	30.00	30.00
	>=20	0.00	0.00	10.00	5.00	15.00
	Sub-total	0.00	5.00	40.00	55.00	100.00
Rajasthan	<8	0.00	0.00	0.00	48.48	48.48
	8–20	0.00	0.00	0.00	21.21	21.21
	>=20	0.00	0.00	0.00	30.30	30.30
	Sub-total	0.00	0.00	0.00	100.00	100.00
Gujarat	<8	23.08	11.54	11.54	7.69	53.85
	8–20	3.85	0.00	3.85	0.00	7.69
	>=20	7.69	15.38	7.69	7.69	38.46
	Sub-total	34.62	26.92	23.08	15.38	100.00
Maharashtra	<8	29.41	20.59	0.00	2.94	52.94
	8 to 20	26.47	2.94	0.00	2.94	32.35
	>=20	0.00	8.82	5.88	0.00	14.71
	Sub-total	55.88	32.35	5.88	5.88	100.00
CITB	<8	12.05	6.25	5.80	20.09	44.20
	8 to 20	5.80	0.89	1.34	20.09	28.13
	>=20	1.79	3.57	3.57	35.71	44.64
	Total	19.64	10.71	10.71	75.89	116.96

Source: Calculated from data of Ministry of Rural Development, GoI website database (omms.nic.in).

In Madhya Pradesh, there are 98% districts which have more than 30% unconnected habitations and if we take the greater than 20% unconnected habitations category, we find that all districts fall in this group. Amongst these, 72% districts also have a greater than 8% ST population share (with 42% districts falling in the >20% ST population category). In Jharkhand, 100% districts fall in the category of >30% unconnected habitations share. Amongst these, 87.5% districts are also those with greater than the national average tribal population of 8%. In Odisha, 96.67% districts belong to >20% unconnected habitations category, with 83.33% of these falling in the >30% unconnected share category. Amongst these, 70% districts also have greater than 8% tribal population. Another 3.33% districts which have 10–20% districts too have greater than 8% tribal population. In West Bengal, 45% districts have greater than 20% unconnected habitations and greater than 8% tribal population.

While Table 5.5 gives us a picture of the count (and share) of districts falling into categories of tribal population and connection status, Table 5.6 correlates tribal population share at the district level with share of unconnected habitations at the district level.[20]

We find that two states – Andhra Pradesh and Chhattisgarh – have very significant and positive correlations implying that in these states, the share of unconnected habitations rises as we move from low tribal concentration districts to higher ones. Only in Madhya Pradesh do we find a significant negative correlation implying the reverse, that is as the share of tribal population increases in the state, the share of unconnected habitations falls.[21] In Rajasthan, we have a negative but not significant correlation, while in the other states we observe a positive but insignificant correlation. Figure 5.3

Table 5.6 Correlation Between Share of Tribal Population and Share of Unconnected Habitations at the District Level: State-wise for CITB States (as in June 2017)

State	*Correlation coefficient*	*Number of observations*	*p-values (signficance)*
Andhra Pradesh	0.735	13	0.004220763
Chhattisgarh	0.769	27	2.796357e-06
Gujarat	0.176	26	0.3884851
Jharkhand	0.265	24	0.2105785
Maharashtra	0.149	34	0.3996543
Madhya Pradesh	-0.3667	50	0.008840648
Odisha	0.038	30	0.8343181
Rajasthan	-0.225	33	0.2079324
West Bengal	0.171	20	0.4711726
All CITB states	**0.175**	**266**	**0.004130059**

Source: Calculated from Ministry of Rural Development, GoI website database (omms.nic.in) and Census of India 2011 figures.

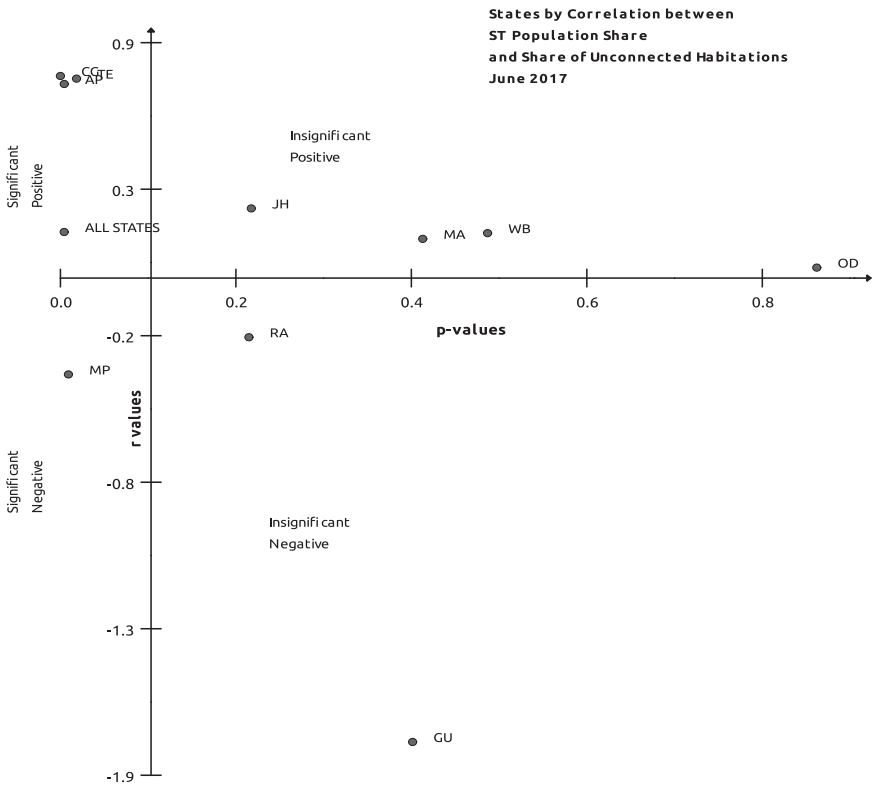

Figure 5.3 Correlation between share of tribal population in states and share of unconnected habitations

depicts this information graphically.[22] While the negative or insignificant correlations may offer some consolation in that tribal areas are not necessarily doing worse than non-tribal areas, the data in Table 5.6 is nevertheless sobering, since it says that in several states, the number of districts with share of unconnected habitations is high even as they have a high tribal population share.

Table 5.7 further looks at habitations in two sub-groups – those with less than 1,000 population and those with less than 250 population. The latter category has been especially targeted by PMGSY as habitations with a population of less than 250 is more of a norm in tribal areas. Table 5.5 shows that while the share of unconnected habitations in each of the population categories is high, this has no distinct pattern with regard to tribal concentration. In states like Andhra Pradesh, Odisha, Maharashtra and Chhattisgarh, in the under-250 category, we find that the share of unconnected

Table 5.7 Share[1] of Unconnected Habitations, According to Low and High Tribal Concentrations Across States (June 2017)

State	*Share of unconnected habitations in:*					
	All habitats		*Habitats with <1000 population*		*Habitats with <250 population*	
	Low tribal conc. districts[2]	*High tribal conc. districts*	*Low tribal conc. districts*	*High tribal conc. districts*	*Low tribal conc. districts*	*High tribal conc. districts*
AP	5.13	21.50	5.87	23.58	8.14	29.29
CG	14.33	38.30	18.30	41.36	37.91	60.45
Gujarat	8.25	8.46	13.45	10.17	17.96	11.31
Jharkhand	21.33	11.02	25.38	12.90	51.41	29.69
MP	43.06	34.78	51.68	40.61	74.12	60.71
Maharashtra	8.39	10.79	8.35	10.78	12.10	18.62
Odisha	11.83	18.97	17.04	22.09	37.49	44.54
Rajasthan	49.79	38.03	59.22	45.30	77.41	73.55
Telengana	1.79	11.52	2.22	13.22	2.79	16.70
WB	3.86	12.20	4.34	13.29	65.16	61.06

Source: Calculated from Ministry of Rural Development, GoI website database (omms.nic.in) and Census of India 2011.

Notes:
1 Shares are ratios of unconnected habitations in June 2017 to total habitations in 2000.
2 Low tribal concentration districts are those with share of tribal in total population of less than 8% (the national average), while high tribal concentration districts are those with share of tribal populations greater than or equal to 8%.

habitations is higher for high tribal concentration districts than for low tribal concentration districts. In states like Madhya Pradesh, Rajasthan and Jharkhand, this is not the case.

What is to be made of these relationships? Ideally, data disaggregated on unconnected habitations according to tribal and non-tribal hamlets would be our best bet in order to arrive at any firm conclusion. In the absence of such data we are using the cross-tabulation and correlations to arrive at some proximate picture. There seems to be no particular reason to believe that the comparative picture between non-tribal and tribal areas is negative, that is the situation becomes worse when we move from less tribal areas to tribal-dominated geographies. However, within districts with tribal concentration in all CITB states, we find a very high share of unconnected habitations, which is not a good sign in itself, especially given that the thrust of PMGSY II is bringing more and more difficult terrains and remote habitations into the road network. The share of unconnected habitations with less than 250 households in high tribal concentration districts is also higher than the share of unconnected habitations with less than 1,000 households in high concentration districts. Since the under-250 population norm was arrived at to cater to areas which are typically difficult and with a high tribal concentration, it would seem that a lot more needs to be done before tribal areas are deemed to be adequately served. While certainly the difficult terrain and remote nature of tribal habitations, along with the rise of extremist ideologies in a section of these districts, has played a role in slow progress of PMGSY, other equally important reasons are to do with state capacity to contract and carry out road construction in remote areas at a large scale.

An evaluation conducted by the Planning Commission in 2005[23] lists procedural impediments as one of the major reasons for the shortfall in targets in several implementing states.

Other important reasons were a new work culture under PMGSY, timely availability of land not being ensured, disputes arising from the fact that PRIs at district and/or village level were not taken into confidence, scarcity of skilled labour and resource deficiency in tendering systems and lack of contractor capacities. Overall, it has found the execution of PMGSY quite satisfactory, especially at the district level, particularly in terms of adherence to guidelines and quality control.

Another evaluation conducted by the PEO in 2010[24] also concludes that the PMGSY has performed well though there have been issues relating to proper involvement of PRIs and people's representatives. Independent evaluation studies too point to the favourable impacts of the PMGSY. A study by Bell (2012) to estimate the impact of the PMGSY finds that extension of connectivity to backward and remote rural areas has a positive impact on the commercial ("trade and production") aspects of life but also in non-commercial ones ("human capital formation and health").[25]

The Mid-Term Appraisal of the 11th Five Year Plan has outlined the following implementation-related issues with respect to PMGSY:

1 Strengthening of institutional capacity, requiring an augmentation in the number of PIUs in each state
2 Augmentation of contracting capacities
3 Forest and environmental clearances, to cut down on the 12–14 months period for obtaining necessary clearances from the forest department
4 Ensuring availability of private lands for construction of roads, involving GPs to ensure this
5 Adequate security in LWE areas

While this is about PMGSY in general, these issues hold, perhaps even more strongly in tribal areas, since implementation and contracting capacities are likely to be weak and most tribal areas are likely to be both forested and LWE affected.

Another study[26] estimates the impact of PMGSY based on econometric modelling and compares the situation with and without roads based on data from the Economic Census of 2005. It finds significant positive impacts of PMGSY on non-farm employment growth, especially in manufacturing, retail trade, education and other sectors. Both male and female employment with roads were estimated to be considerably higher than that without roads. Similarly, employment for villages near towns and far from towns was higher if the village was connected by a PMGSY road than if it was not. In terms of the impact across different social groups, the study finds huge increases in employment for SCs, OBCs and general categories when roads are present as compared to a "no road" situation. The only social group not to have seen any impact were the STs, whose situation did not change. The study further points out that another study carried out by Banerjee et al. points to better governance delivery made possible after PMGSY roads were constructed.

Another study based on a survey of villages in Odisha captured "before-after" and "with-without" impacts of PMGSY connectivity.[27] It found that net output prices were 5% or higher, higher school attendance was taking place as a result of reduced absenteeism by teachers and it was more possible to get the sick treated in hospitals than before/without. In the perception of the beneficiaries, the non-commercial impacts of PMGSY were as important to them as the commerical ones.[28] Another study[29] of Dewas, Shivpuri, Mandla and Vidisha districts also notes positive impacts on income and employment of the rural poor.

Yet another paper (Agarwal, 2018) finds a positive relationship between PMGSY roads and livelihoods. Prices come down due to greater access to roads, there is increased access to improved agricultural inputs and greater opportunities for rural people to sell their wares in the market. However,

the study also observes a 11% drop in school enrolment after roads were available, because children left school to take part in sales activities outside their villages. This brings us to an important aspect – for true inclusion to be fostered by infrastructure interventions such as PMGSY, there need to be synergistic investments in other aspects of economic life as well. Otherwise, while income poverty may come down, investments in human capital may take a hit as well. This is particularly true for tribal geographies where the determinants of deprivation are far too many to be tackled by a road construction programme alone (nor would it be fair to expect such a programme to lift populations out of poverty on its own strength).

A study[30] carried out in Himachal Pradesh, Jharkhand and Rajasthan concludes that overall positive impacts on incomes were observed as a result of PMGSY. In Jharkhand and Himachal Pradesh, road construction also led to a shift in cropping pattern in favour of cash crops. Participation of villagers in planning and construction of the roads was found to be weak, though the majority of respondents were satisfied with the final alignment. The new roads have also opened up newer economic avenues for women and weak social groups, though the major benefits have accrued to "other castes" and "others" with SCs and STs being the major non-beneficiaries. Apart from direct movement benefits emanating from PMGSY, respondents of weaker social groups felt that complementary policies were needed for them to be able to take full advantage of the new opportunities opened up by provisioning of road connectivity. These complementarities would have to be location-specific, meeting local demands and needs in order to be effective. For this the National Rural Roads Development Authority (NRRDA) would need to play a catalystic role of bringing about convergence and synergy between different government departments. The study also concludes that PMGSY would benefit from a greater participation of the local communities at the stage of planning and design itself, especially given that while construction is indeed important, maintenance of roads is also equally, if not more critical. A study on the impact of proper maintenance of rural roads concludes that on all aspects studied, that is agricultural growth, employment, poverty reduction and health and education, performance of households where roads were maintained ("sample") was much better than that of households where roads were not maintained ("controlled"). Among its major conclusions is that Gram Panchayats and communities must be involved in the maintenance of roads so that there is greater ownership and accountability.

A more recent paper[31] compares PMGSY with MGNREGA and concludes that PMGSY is better designed, better monitored and better funded.[32] The paper argues that PMGSY allocates resources according to the population of the poor whereas MGNGREGA does not (depending as it does on demand from below). As a result poorer states tend to have employment rationed under MGNREGA. This is a somewhat simplistic argument. For one, it ignores the complexities of engagement with the village community (and the

task of balancing community conflicts) that MGNREGA requires in order to create and implement a plan which encompasses within it not one simple activity but many, each of which together fits into creating a village development plan. Compare this with PMGSY, which has a simpler goal and has an equally simpler delivery architecture, where the community need not be involved to the same extent (a theme which we will return to at the end of this chapter). Similarly, instead of simplifying the design of MGNREGA by following the PMGSY model of allocating resources according to poverty[33] (and thereby effectively converting the MGNREGA from a demand driven "right from below" to yet another government scheme), it would be best to allocate human resources and create capacity for MGNREGA, which have been a crying need at the grassroots for several years if not decades. This might be the more difficult route but one which nonetheless is long overdue. It is also simply not true to say that PMGSY in its present form has a more positive impact on livelihoods than MGNREGA, in that the desired objectives (under MGNREGA) of drought proofing and higher agricultural productivity in the drylands are not being met. If the desired objective of MGNREGA (and MGNREGA-like interventions) are not met, what forward linkages will PMGSY enable? There is overwhelming evidence from the ground to suggest that for PMGSY to be successful, state interventions in livelihoods and agriculture need to be ramped up, not just quantitatively but also qualitatively. In other words, the success of PMGSY in realizing its fully potential depends on that of other schemes as much as it depends on design and implementation of PMGSY itself.[34]

Drinking Water

Drinking water is a basic human need, critical to human capital formation. As argued earlier, this human capital formation is an investment and contributor to growth and development and not merely welfare "sops".[35] It is not surprising then that the central and state governments have spent several crores of rupees in trying to ensure that the entire rural population is covered under drinking water schemes. The 11th Five Year Plan had set a target of covering 7,98,967 habitations under the National Rural Drinking Water Programme (NRDWP). The actual achievement upto 2012 however was 83% of this.[36] The investments on rural drinking water after Independence upto 2012 are summarized in Table 5.8.

However, while 83% of target population being covered by drinking water schemes seems like an impressive achievement, the fact is that the figures have tended to be haunted by "slipbacks", that is as coverage becomes universalized, households that have been covered at some point have slipped back into an uncovered or partially covered status. Thus, while handpumps or water supply schemes may have been installed, water sources may have dried up, there may be no community-based repair or maintenance methods due to which the created assets may be in a state of disrepair and disuse, the

Table 5.8 Expenditure on Rural Drinking Water

Plan period	*Investment made (₹ Cr)*	
	Centre	*State*
First (1951–56)	0	3
Second (1956–61)	0	30
Third (1961–66)	0	48
Fourth (1969–74)	34	208
Fifth (1974–79)	157	348
Sixth (1980–85)	895	1,530
Seventh (1985–90)	1,906	2,471
Eighth (1992–97)	4,140	5,084
Ninth (1997–2002)	8,455	10,773
Tenth (2002–07)	16,254	15,102
Eleventh	39,211	49,000

Source: Planning Commission (2012).

supply of water may be unreliable and worse still, the quality of water may be terrible.[37]

The per capita water availability in India, estimated at 1,820 cubic metres in 2001 came down to 1,588 cubic metres in 2010,[38] which is less than the internationally accepted water-stress threshold of 1,700 cubic metres. There seem to be large inter-basin differences in water availability. Indeed, water availability depends on environmental and socio-economic factors shaping access to water (Shankar and Shah, 2009).

The GoI launched the Accelerated Rural Water Supply Programme (ARWSP) in 1972–73, given the rapidly worsening water supply situation in rural India. The programme specificed national norms for drinking water. According to these norms, 40 litres per capita per day (lpcd) should be available for drinking water purposes and a further 30 lpcd for cattle in areas under the Desert Development Programme. Further, it stipulated that there should be a water source within the habitation or at a distance of not more than 1.6 kilometres and a handpump or stand post for every 250 persons. By the sixth plan it was realized that the allocations for drinking water were low and nearly two lakh habitations were in need of water supply provision, estimating that only 38% of households in India had access to potable drinking water, despite the intensification under ARWSP.

This resulted in the launch of the National Drinking Water Mission in 1986, later re-christened as the Rajiv Gandhi NDWM, to strengthen the rural water supply system even further. In the late 1990s, the world-bank sponsored Sector Reforms project led to a further paradigm shift with emphasis on moving from a supply-driven, top-down approach to a community-led, demand-driven, bottom-up approach to drinking water. It realized that unless communities are at the centre of drinking water provisioning efforts, the situation would remain dismal. The scale-up was supposed to take place

throughout the country as the *Swajaldhara* programme launched in December 2002. Earlier by 1994, the 73rd Constitutional Amendment had paved the way for devolution of responsibility of drinking water to PRIs. The Swajaldhara programme proposed a partial capital cost sharing arrangement through user charges and complete community control over operations and maintenance.

In 2009, the Accelerated Rural Water Supply programme was redesignated as the NRDWP. In the 12th Plan period, the NRDWP redfined its major goals to reflect national priorities. Amongst these new objectives were the following (MoDWS, 2013):

- Focus on piped water supply (PWS) with handpumps giving way to PWS systems in order to take pressure off groundwater resources and ensure potability
- Service-level norms *increased* from 40 lpcd to 55 lpcd
- Water quality a major thrust area with funds earmarked for monitoring and ensuring the same
- "Moving towards the target that, by 2017, at least 50 per cent of rural population in the country have access to 55 lpcd within their household premises or within 100 metres radius, with at least 30 per cent having individual household connections, as against 13 per cent today" (NRDWP Guidelines, Ministry of Drinking Water and Sanitation, GoI, 2013)

In the following sections, we look at whether the shifts in policy have also led to the desired results, especially in the context of STs in India.

Table 5.9 offers comparison between STs and other social groups in terms of source of drinking water.

As we can see from the table, STs are far below other social groups (including SCs) in terms of access to tap water supply. They are also below the national average as far as this source is concerned. They mainly rely on handpumps, wells and other sources.

Table 5.9 Households (%) by Social Group and Source of Drinking Water, 2011

Social group	*Source*				
	Tap	*Well*	*Handpump*	*Tubewell/ borehole*	*All others*
SC	41.3	8.3	39.6	7.7	3.2
ST	24.4	21.1	38.2	7.8	7.5
General	46.6	10.4	31.2	8.8	3.0
Total	43.5	11	33.5	8.5	3.5

Source: Chandramouli C. (2013): *Scheduled Tribes in India: As Revealed in Census 2011*, Registrar General and Census Commissioner, GoI.

Table 5.10 presents data in terms of distance of water source from residence.

In this comparison as well, we find that only 19.7% ST families have a drinking water source within their premises as compared to nearly 53% for general category families and nearly 47% average across social groups. However, a large share of ST families has access to a drinking water source near their residence. In terms of distant sources, the highest share again belongs to ST families.

Table 5.11 sheds light on the distribution of ST households by source across India.

Table 5.10 Drinking Water Source Distance by Social Group

	Within premises	*Near premises*	*Away*
SC	35.4	43.6	21
ST	19.7	46.7	33.6
General	52.8	32.5	14.6
Total	46.6	35.8	17.6

Source: Census of India, 2011.

Table 5.11 Distribution of ST Families (and Share of Families) by Source and Distance of Drinking Water Source – All India, 2011

All India	*Within*	*Near*	*Far*	*Total*
Tap water from treated source	1,830,478	1,195,526	384,628	3,410,632
Share %	53.67	35.05	11.28	100.00
Tap water from untreated source	657,470	1,252,239	381,373	2,291,082
Share %	28.70	54.66	16.65	100.00
Covered well	105,891	180,731	163,993	450,615
Share %	23.50	40.11	36.39	100.00
Uncovered well	639,807	1,777,436	2,047,918	4,465,161
Share %	14.33	39.81	45.86	100.00
Handpump	962,069	5,110,554	3,072,716	9,145,339
Share %	10.52	55.88	33.60	100.00
Tubewell/bore	404,935	814,888	605,943	1,825,766
Share %	22.18	44.63	33.19	100.00
Spring	0	215,893	505,325	721,218
Share %	0.00	29.93	70.07	100.00
River/canal	0	138,650	326,474	465,124
Share %	0.00	29.81	70.19	100.00
Tank/pond/lake	0	111,790	144,337	256,127
Share %	0.00	43.65	56.35	100.00
Other	0	94,097	203,984	298,081
Share %	0.00	31.57	68.43	100.00
Total	**4,600,650**	**10,891,804**	**7,836,691**	**23,329,145**
Share %	**19.72**	**46.69**	**33.59**	**100.00**

Source: calculated from Census of India (2011).

We see that the share of all sources in the "within" category is the least and that of far sources stands at around 34%. But of those who have water within the premises, a higher proportion have treated tap water and handpumps than other sources. For those who do not have a water source within their residence, handpumps are the major source, followed by uncovered wells, untreated tap water and treated tap water in that order. A fairly large proportion has to rely on far sources including uncovered wells, handpumps and other sources such as rivers, streams, canals and the like. A very small portion of ST households can say that they enjoy the basic necessity of treated tap water at their doorstep. A majority depend on handpumps still, which are also not located within their premises.

Before we look at qualitative issues in actual provisioning of drinking water, let us examine on the basis of block-level data if there is any reason to believe that tribal geographies and lack of drinking water sources within premises are particularly related to each other.

Table 5.12 presents correlation coefficients calculated from Census 2011 data on census sub-districts (i.e. block-level data) on ST population share in each block and share of households in the block with drinking water source within their residential premises.

We see from the table that tribal concentration is positively correlated with share of households with no drinking water source in their premises. In the CITB, we observe high and significant correlations in Chhattisgarh, Jharkhand, Odisha, Rajasthan, Gujarat and Maharashtra. Madhya Pradesh and West Bangal have a relatively lower correlation coefficient, though even here the correlation is quite high and significant. Further, states like Madhya Pradesh, Chhattisgarh and Gujarat, which did better in the "all blocks" category are seen to slide when the baseline of tribal population concentration increases to at least 5%.

Table 5.12 Correlation of Tribal Concentration at Block Level With Non-Availability of Drinking Water Within Residential Premises – All India 2011

	State	*All blocks*			*Blocks with ST population >= 5% of total population*		
		R	*N*	*Sig at*	*R*	*N*	*Sig at*
1	West Bengal	0.18	341	0	0.25	154	0
2	Madhya Pradesh	0.22	342	0	0.31	260	0
3	Andhra Pradesh	0.2	1,128	0	0.31	456	0
4	Rajasthan	0.39	244	0	0.4	138	0
5	Odisha	0.51	477	0	0.47	350	0
6	Chhattisgarh	0.47	149	0	0.5	140	0
7	Jharkhand	0.53	259	0	0.51	215	0
8	Maharashtra	0.49	355	0	0.55	199	0
9	Gujarat	0.68	225	0	0.7	81	0
	All India	**0.38**	**5,955**	**0**	**0.31**	**2,840**	**0**

Source: calculated from data in Census of India 2011.

At the all-India level and in some states the correlation coefficient declines when we shift from "all blocks" to "blocks with more than 5% ST population" probably because when all blocks are included the transition from no-tribal (or negligible tribal) blocks to those with tribal concentration is quite dramatic in terms of availability of drinking water on premises, even though 5% as a threshold of tribal concentration is lower than the national average of around 8% ST population.

The situation outlined here is cause for concern. Yet, what it outlines is likely to be the tip of the iceberg. For it talks only of the supply side situation, which we have seen is a matter of provisioning alone. The actual business of availability is a further step away, since the sources have not only to be installed, but to be functional at all times, should provide water when needed and should be repaired within an acceptable time frame if in disrepair. This is another order of challenge.

In terms of water supply provisioning, we rely on government data on the NRDWP website (http://indiawater.gov.in/imisreports/nrdwpmain.aspx). We look at some key indicators which the data provide to examine the state of provisioning of drinking water in tribal areas. Before we go further, however, we need to look at what the norms of 40 lpcd and 55 lpcd entail (Table 5.13).

In terms of fully covered habitations, ST areas, Figure 5.4 shows how ST-dominated areas in the CITB states have progressed in provisioning. In terms of the basic requirement as 40 lpcd, all CITB states have either slowly moved upwards or have consistently moved up.

States like Madhya Pradesh, Chhattisgarh and Odisha have started from a low share of fully covered habitations and moved up to bring 90% or more of the population under full coverage. Andhra Pradesh and Telangana do not seem to have done so well, while Rajasthan and Maharashtra registered a decline over time. West Bengal seems to witness a huge decline between 2012 and 2013 and then started to pick up.

Table 5.13 Norms for Per Capita Water Availability

Description	*Desired lpcd as per 40 lpcd norm*	*Desired lpcd as per 55 lpcd norm*
Drinking	3	3
Cooking	5	5
Bathing	15	15
Washing utensils and house	7	10
Ablution/toilets	10	10
Washing of clothes and other uses		12
Total	**40**	**55**

Source: Report of the Working Group on Rural Domestic Water and Sanitation for the 12th Five Year Plan, Ministry of Drinking Water and Sanitation, GoI and National Rural Drinking Water Programme: Frame Work for Implementation, 2013.

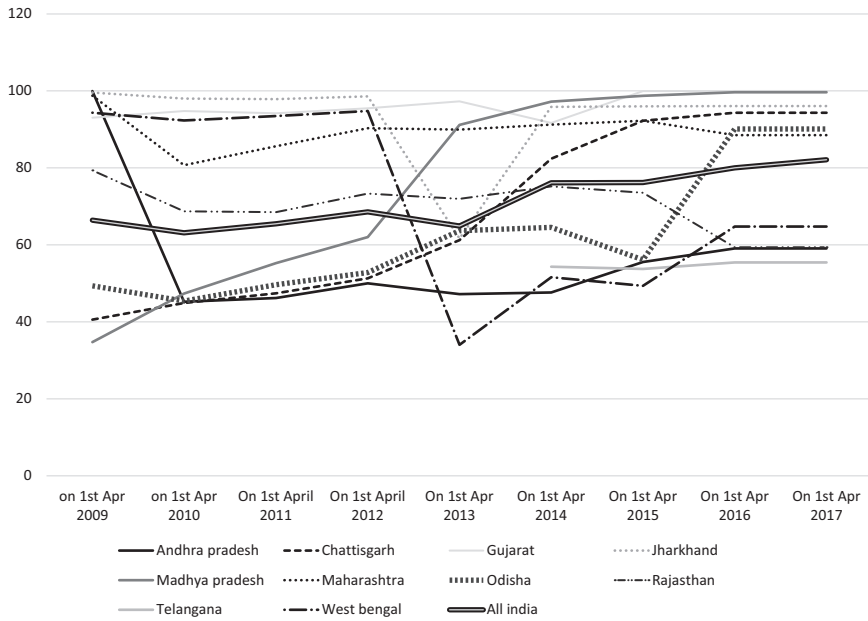

Figure 5.4 Progress in full coverage under NRDWP (40 lpcd norm)

As the graph in Figure 5.5 shows, the coverage under the stricter norm of 55 lpcd is less dramatic, with several states including West Bengal, Chhattisgarh, Odisha, Rajasthan, Maharashtra, Telangana and Andhra Pradesh below 50%., with some of these states even showing a marginal decline between 2015–16 and 2016–17. The CITB as a whole is above 50%, but there still needs a lot to be done. The 55 lpcd norm is the more relevant category since with the adoption of the 2013 guidelines, this is the norm that NRDWP is aspiring for.

In order to focus on the current situation, we have taken the figures only for 2017 in Figure 5.6.

We see that most states are below the national and CITB average, with Maharashtra, Odisha and Rajasthan faring poorly. These states are also well below the targeted 50% of households by 2017 to receive water at or near doorstep (as per the NRDWP guidelines of 2013). Gujarat, Jharkhand and Madhya Pradesh; however, are well above the national and CITB averages.

While the aforementioned does indicate that provisioning has moved ahead over the years, alas, this is no guarantee for actual drinking water security. The aforementioned data does not inform us about the sustainability or otherwise of the drinking water sources. Especially since handpumps continue to be the major source of drinking water servicing the tribal

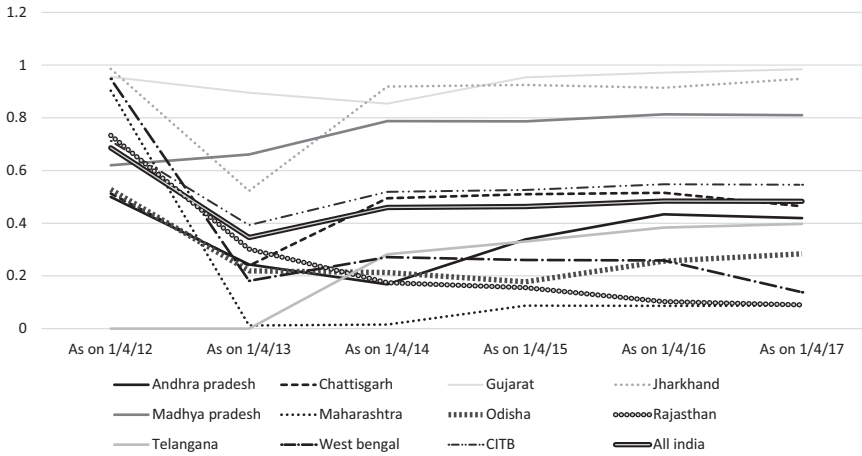

Figure 5.5 Fully covered habitations (55 lpcd norm)

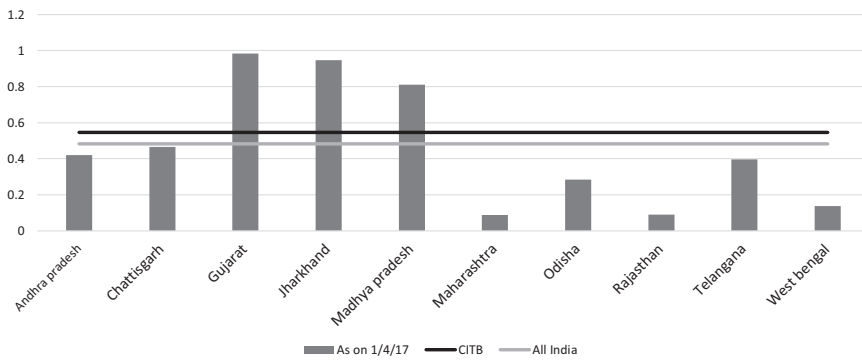

Figure 5.6 NRDWP fully covered habitations as on 1st April 2017 (55 lpcd norm)

population, what happens if handpumps go dry in the summer season or become dysfunctional if some small component like a washer or valve gets worn out? Of if there is geogenic leaching which causes groundwater sources to become contaminated with arsenic and fluoride? Likewise, the competitive pumping of groundwater for irrigation from the same aquifers also poses problems of sustainability of the source. Groundwater irrigation accounts for 65% of the irrigation in India, with tubewells accounting for 40% of the irrigated area. The Gross Irrigated Area went up from 28.6 million hectares in 1960–63 (triennium average) to 76.5 million hectares in 1999–2000 at

an average annual growth rate of 2.69% (Shankar and Shah, *op.cit.*, 2009). There are also cases of discrimination against SC and ST families in terms of use of common water sources. The data are also silent on crucial indicators of access, such as how much time does it take to reach the water source, how far is the source, how much waiting time is indicated, the frequency of water supply, the time during the day when the water is available, number of hours of supply and quality of water.[39] Hence, a more access-oriented approach is required to understand the situation with respect to availability of drinking water in.

The NSSO's 69th round[40] reports on key indicators of housing and sanitation in India in 2012, *but not disaggregated between tribal and non-tribal communities*. The report highlights a high share of households which reported "sufficient" and "improved" source of drinking water throughout the year (85% for India as a whole). However, Table T2 of the report spells out the proportion of households (per thousand) who have access to drinking water within premises or within 200 metres of 500 metres of residence. Table 5.14 shows these figures for the CITB states.

Even as late as 2012, we find several states reporting that most of the population had to travel outside their homes for water. This includes states which report a very high share of "fully covered" habitations. Table 5.15 sheds light on sufficiency of water from the point of view of all household activities (not just drinking), including cooking, bathing, toilet, washing utensils and clothes, cleaning of floors and household goods and so on.

We find that several of the states which registered a high full coverage rate as per the 40 lpcd norm actually show a less than 90% sufficiency report (these include Chhattisgarh, Madhya Pradesh and Jharkhand). It needs to

Table 5.14 Household Access to Drinking Water Within Premises and Near Premises

State	*Rural households with water within premises (per'000)*	*Rural households travelling < 200 m to drinking source (per'000)*	*Rural households travelling > 200 m and < 500 m to drinking source (per'000)*
Andhra Pradesh	406	423	97
Chhattisgarh	173	636	186
Gujarat	576	263	92
Jharkhand	186	491	275
Madhya Pradesh	194	563	194
Maharashtra	468	381	83
Odisha	191	608	154
Rajasthan	396	322	190
West Bengal	301	547	132
All India	461	409	93

Source: NSSO (2012).

Table 5.15 Sufficiency of Water for All Household Chores (Rural)

State	*Number of households (per'000) reporting sufficient water for all household chores*
Andhra Pradesh	867
Chhattisgarh	837
Gujarat	881
Jharkhand	735
Madhya Pradesh	787
Maharashtra	729
Odisha	832
Rajasthan	777
West Bengal	849
All India	860

Source: From NSSO (2012).

Table 5.16 Time Taken in Reaching Water Source and Waiting to Fill Water

State	*Average time (minutes) taken to reach water source*	*Average time (minutes) spent waiting to fill water*	*Total time*
Andhra Pradesh	14	13	27
Chhattisgarh	18	13	31
Gujarat	21	12	33
Jharkhand	40	22	62
Madhya Pradesh	22	18	40
Maharashtra	24	17	41
Odisha	16	13	29
Rajasthan	31	20	51
West Bengal	12	13	25
CITB states	**22**	**16**	**38**
All India	**20**	**15**	**35**

Source: From NSSO (2012).

be emphasized here that these figures are not segregated according to tribal and non-tribal households, and the picture is likely to get more difficult when we look at tribals alone. However, the MIS reports of the government and the NSSO survey do seem to suggest that there has been movement forward in terms of creating supply infrastructure. Table 5.16 based on the same NSSO report also looks at the time taken on filling water as an activity by average households.

From the table, the picture does not look very happy, especially for Jharkhand, Madhya Pradesh, Rajasthan and Maharashtra, where the average time per day is very high. Given that this activity is normally carried

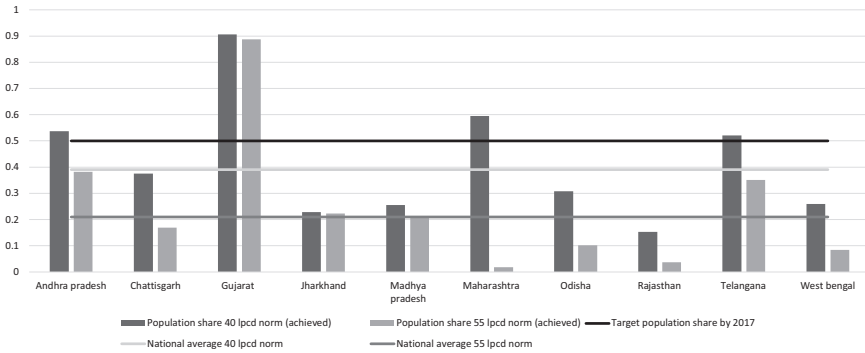

Figure 5.7 Piped water supply: target and achievement in terms of full coverage

out by women, this is a serious situation. In Chhattisgarh, Gujarat and Odisha too the time spent is quite high. If this were compared to an urban middle-class household, where the norm is water supply at doorstep, the time taken stands out in contrast. It also calls into some question the claims in official statistics regarding full coverage – what does full coverage mean if the supply of such a basic need as water remains a chore? We need to also remember here that the chore is carried out mostly by women and even by children. In addition to the time taken, several trips have to be made to fulfil the requirements of the household. This does not bode well for either gender equity or human capital formation since children should devote their time to education or playing rather than be subjected to carrying out such work. Furthermore, the decline in women's participation in employment is a reflection of greater involvement in such unpaid and unrecognized chores.[41]

Figure 5.7 looks at the target and achievement in terms of the stated objective of the 2013 NRDWP guidelines with respect to piped water supply, wherein a timeline was set to the effect that at least 50% of households would have access to Piped Water Supply (PWS), with at least 35% receiving PWS via individual household connections. It plots the share of households with full coverage from PWS, state-wise against the two norms of 40 and 55 lpcd in ST-dominated areas. As we see from Figure 5.7, the target of 50% has still to be achieved nationally, let alone the ST-dominated areas within the CITB states, most of which are well below the target even by the smaller norm of 40 lpcd. The gap between the target and the actual widens if the norm is pegged at 55 lpcd. The national average achieved for the latter itself is quite low. Only Gujarat, Andhra Pradesh, Maharashtra and Telangana can be said to have achieved the target rate by the 40 lpcd norm and only Gujarat by the 55 lpcd norm.

Slipped Back Habitations

As stated earlier, the progress made in capital provisioning in terms of water has been haunted by "slipbacks", that is habitations declared to be fully covered have slipped back into partial coverage because the water source has gone into disrepair or the amount of water expected of it has not been available and so on.

In Figure 5.8, we look at fully covered slipped back habitations as reflected in official data. *This data is not available for ST geographies separately*.

Figure 5.8 suggests that though there have been fluctuations over the years across states in the share of habitations slipping back, the amplitude of these fluctuations has been going down. The ups and downs are in different years for different trends, but the overall trend is declining. A similar pattern is visible in partially covered and quality affected habitations as well, as Figure 5.9 shows.

While the aforementioned data reflect share of habitations, the absolute number of habitations also is equally important. On an average, official MIS data show that between 2011–12 and 2016–17, nearly 38,280 habitations had slipped back in CITB states. These represent 49.2%, or nearly half, of the total slipped back habitations in India. The slipbacks become important also because they represent a wastage of precious public resources and testify to the fact that in all probability, very little attention has been paid to the sustainability of the source itself. To make a drinking water source sustainable would mean paying attention to recharge of groundwater sources, treatment measures in catchments of water bodies, creation of new pondages and so on.

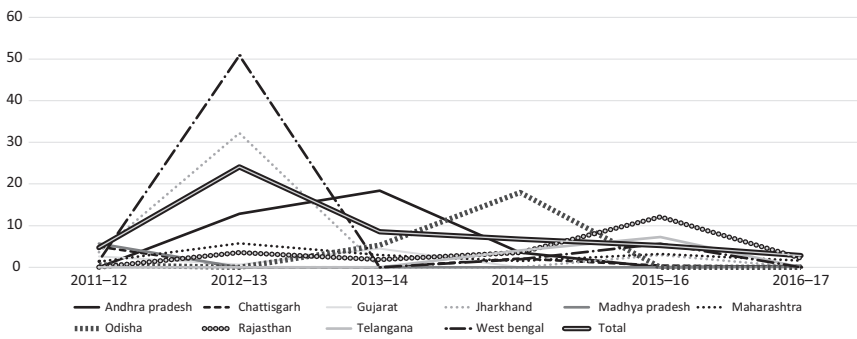

Figure 5.8 Fully covered slipped back habitations as share of total habitations (2011–12 to 2016–17)

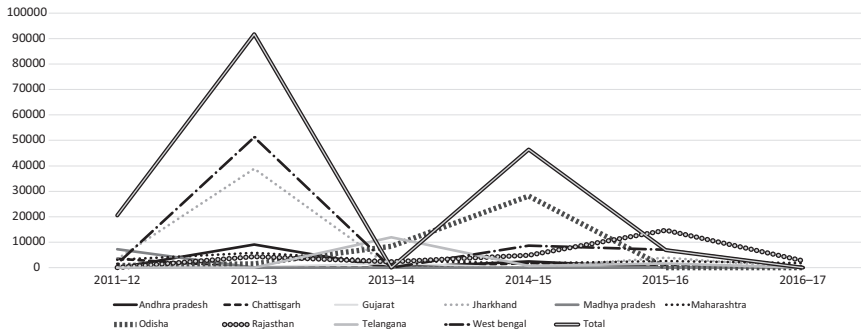

Figure 5.9 Share of slipped back habitations (partially covered and QA)

Water Quality

As per the mid-term appraisal of the 11th Plan, there were a total of 2,16,968 habitations affected by water quality contamination problems in 2005. By 2009, due to progress made under Bharat Nirman, this figure came down to 179,888, that is a reduction of around 17%. In the beginning of the financial year 2014–15, the Ministry of Drinking Water and Sanitation's website states that 78,506 habitations were facing water quality issues. Compared to 2005, this means a nearly 64% decline.

Data on the Ministry's website also gives figures specifically for tribal-dominated habitations. Table 5.17 presents calculations on the basis of these data to show the shares of water quality-related habitations and of such habitations which were covered.

What is curious about the data is that despite a less than 100% coverage of QA habitations each year, the number of QA habitations overall is seen to be declining and registering high rates of decline over time except in the case of Jharkhand, West Bengal and Telangana. In our view, the QA habitations in any year (Y) should reflect the opening balance of QA habitations at the end of the previous year (Y-1) minus the progress made during the year Y. However, this simple formula breaks down if new QA habitations get introduced, so that the opening balance in any year could be greater than simply the result of the formula. But, in several years, the data in several states show an opening balance that is even less than what the formula would have. This is neither explained by the data nor is acceptable and perhaps indicates that the data need to be looked at more critically. Table 5.18 shows some of these discrepancies. The negative values indicate an opening balance of QA habitations less than that warranted by the above formula and does beg the question – how did this happen?

Table 5.17 Water Quality Habitations in ST-Dominated Areas and Habitations Treated (% Share) 2011–12 to 2016–17

State	*2011–12*	*2012–13*	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*Average rate of decline (%)42*
	As on 1–4–11	*As on 1–4–12*	*As on 1–4–13*	*As on 1–4–14*	*As on 1–4–15*	*As on 1–4–16*	*-18.80*
Andhra Pradesh	74	42	575	94	52	41	– 34.00
Chattisgarh	6,197	6,732	4,187	3,172	1,499	638	-56.25
Gujarat	149	107	67	77	0	15	26.47
Jharkhand	511	254	49	9	17	1,665	-36.91
Madhya Pradesh	1,860	1,951	1,505	1,226	492	212	-35.91
Maharashtra	275	153	140	93	54	29	-35.94
Odisha	5,297	4,468	3,292	2,157	1,313	589	-34.46
Rajasthan	3,171	1,868	1,685	1,416	1,337	1,442	-9.86
Telangana	0	0	0	314	343	371	5.09
West Bengal	444	350	156	675	759	694	19.75
CITB	17,978	15,925	11,656	9,233	5,866	5,696	-19

Source: NRDWP website.

Table 5.18 Anomalies in QA Data: Shortfalls in Opening Balances Reported

State	*2011–12*	*2012–13*	*2013–14*	*2014–15*	*2015–16*
Andhra Pradesh	0	551	-437	-36	-8
Chattisgarh	1,690	-1,166	118	-319	-503
Gujarat	107	50	68	-2	15
Jharkhand	2	-37	-15	8	1,648
Madhya Pradesh	339	144	317	-122	-46
Maharashtra	9	42	-1	-1	-7
Odisha	-338	-570	-555	-317	-466
Rajasthan	-596	1,868	181	7	126
Telangana	0	0	314	69	41
West Bengal	64	-165	535	149	-29

Source: NRDWP website.

Community-Based Maintenance of Drinking Water

Poor operation and maintenance leads to a very high rate of "attrition and dilapidated facilities".[43] This has also been identified as the "weakest aspect" plaguing the drinking water sector in India by the 12th Plan. In terms of maintenance, the way forward would clearly seem to be genuine devolution of functions, functionaries and funds to PRIs, especially at the village level. Community mobilizaton and ownership of drinking water by the Gram Sabha are essential for the success of drinking water schemes. In this context, it is pertinent to note that the exercise of devolution which started with the 73rd amendment to the Constitution is still work in progress. And the progress has been painfully slow. Thus, we have a situation where there is subsidiarity without empowerment, which in turn has led to universalization without quality. In order to carry out the mandate of looking after basic needs, it is not enough to say that panchayats are reponsible. Panchayats have to be provided the human resources and wherewithal to carry out the functions that they are supposed to. This is yet a distant dream.

NDRWP data points to the tardy state of affairs with regard to community involvement. Despite the high level of capital investment, the sustainability of the entire exercise is in doubt if community involvement is not stepped up, not just quantitatively but also qualitatively. Figure 5.10 shows the lack of progress in this regard.

These data point out that barring some exceptional years, the share of villages with dedicated committees on water and sanitation remains abysmally low. These are data not disaggregated according to ST and non-ST dominated. The picture does not look good for community participation.

Table 5.19 says that on an average for CITB states, 58% of the targeted Gram Sabha meetings on drinking water could be held between 2010–11 and 2016–17. Of course, some states have overshot their targets, but overall the picture is dismal. Given the difficulties of organizing genuinely representative Gram Sabhas on any issue and ensuring that these

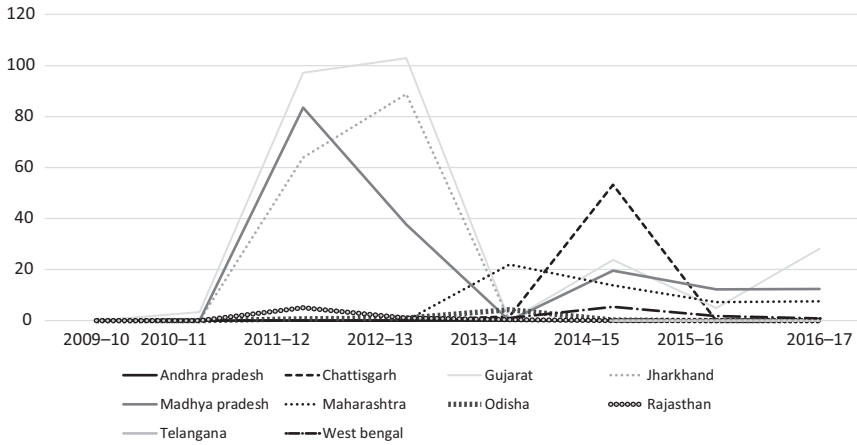

Figure 5.10 Status of community involvement in drinking water

Table 5.19 Gram Sabha Meetings for Drinking Water-Related Issues Targeted and Held (Average for 2010–11 to 2016–17)

	Gram Sabha meetings targeted	*Held*	*%*
Andhra Pradesh	1,836	0	0
Chattisgarh	1,554	460	30
Gujarat	1,647	3,215	195
Jharkhand	8,988	4,706	52
Madhya Pradesh	17,452	10,979	63
Maharashtra	12,769	13,628	107
Odisha	6,057	0	0
Rajasthan	5,354	0	0
Telangana	2,920	0	0
West Bengal	707	229	32
Total	57,616	33,216	58

Source: NRDWP website.

meetings are not reduced to a formality, even the 58% achievement perhaps hides more than it reveals.

An evaluation carried out by the PEO of the RGNDWM in 2010,[44] which covered 240 habitations in 60 Gram Panchayats in ten districts of West Bengal, Assam, Karnataka, Rajasthan and Himachal Pradesh, observes a fair amount of success in terms provision of water supply, availability of water throughout the year and safety and water quality. The impacts on women and children are positive as well, as it has taken care of the drudgery of fetching potable water from long distances and given more time to women and children to either attend to other work or studies. However, the

report also observes that control of community institutions and their capacity building have not even taken off, with only less than 1% of respondents affirming knowledge of the existence of the village water and sanitation committees, virtually no training provided to PRIs or communities on water quality testing and monitoring and most of the GPs preferring not to take over the operations and management of the drinking water sources into their own hands.

Clearly, a lot needs to be done in this regard, the mid-term appraisal of the 11th Plan advocated an incentive of 10% of the NRDWP fund to be given to states for transfer of drinking water to PRIs and another 2% to be earmarked for IEC and capacity building. It further favoured setting up of water and sanitation support organizations at the state level for technical support.

The 12th Plan similarly emphasized that the subsidiarity principle should be strictly followed and additional 10% weightage should be given to those Gram Panchayats which have, according to the Ministry of Drinking Water and Sanitation, effectively devolved drinking water to GPs. The amount allocated for operations and management was increased from 10% to 15%.

Sanitation

The relationship between open defecation and infant mortality has been fairly well established in recent research. In the case of the Total Sanitation Campaign, one research paper (Spears, 2012) found clear evidence of a drop in IMR through a reduction in open defecation and an adoption of toilets. The 12th Plan document says:

> [T]he impact of sanitation and hygiene interventions on child undernutrition has been seriously undervalued in the existing research as this effect has been modelled entirely through diarrhoea.

There is evidence to show that a major reason for child undernutrition is a disorder of the small intestine known as tropical enteropathy, caused by fecal bacterial ingested by children from the environment living in insanitary conditions of open defecation. There is also evidence of the adverse economic impact of lack of proper sanitation. A study estimates that in 2006, the economic value of the impact of inadequate sanitation in India was to the tune of ₹2.4 trillion or USD 53.8 billion. In purchasing power parity terms this comes to USD 161 billion or USD 144 per capita.[45] The study looks at health-related impacts (premature mortality, healthcare costs, productivity losses due to illness), domestic water-related impacts (household treatment of drinking water, use of bottled water, costs of piped water supply, bringing clean water from a distance), access time impacts (cost of additional time needed to access public toilets or open defecation sites, costs of school absence) and tourism impacts (loss of tourist traffic and hence tourist revenue and economic impact of tourists suffering from GI tract infections).

Equally important is the understanding that water and sanitation are *investments* rather than just welfare expenditures. Sanitation and drinking water together can greatly contribute to poverty eradication and economic growth and the returns to these investments far outweigh the costs incurred. What is more, despite the considerable investment involved, the goal of improved water and sanitation access for all is highly feasible.[46]

Given this, India's track record with regard to sanitation is quite abysmal. In the Ist Plan period, only 3% of the population had any access to sewerage. In the 1980s, the share of households with latrines was as low as 1%. In 1986, to tackle such problems the Central Rural Sanitation Programme was launched. However, this failed to make any significant contribution and was restructured in 1999 to form a "demand-driven" scheme called the Total Sanitation Campaign (TSC). While it is often claimed that TSC heralded a sanitation revolution, the 12th Plan is more sober and reflective. The spectre of open defecation haunts about 600 million Indians (nearly 50% of the total population), which is a "national shame" (12th Five Year Plan, Vol.2 p.302). The evidence from the census suggests only a 10% drop between 2001 and 2011 in the share of households without latrines.

In terms of international comparisons, the graph in Figure 5.11 shows how poorly India fares in comparison with its South Asian neighbours, including Bangladesh and Pakistan, which have a lower share of population practising open defecation. Sri Lanka of course had historically a lower share of persons practising open defecation and has worked to eliminate it altogether in recent years. Bangladesh, on the other hand, had a fairly high share of people practising open defecation but has managed to dramatically reduce this share to nearly zero through persistent effort. Pakistan too has shown a historically high share of persons practising open defecation but which has come down significantly over time. India not only started with a

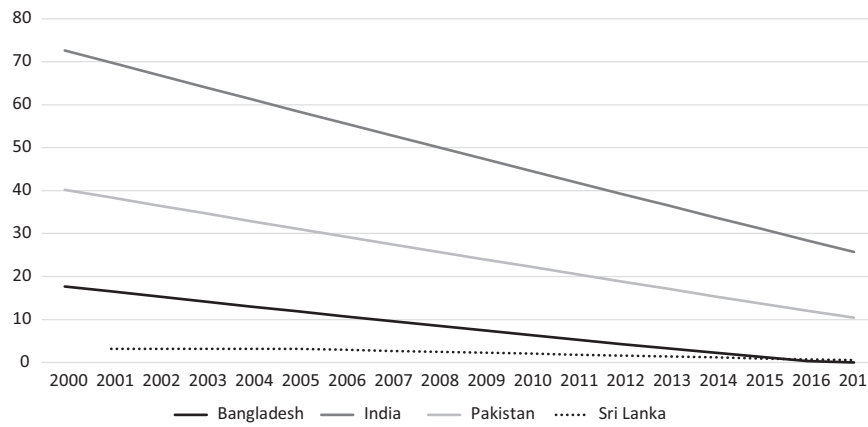

Figure 5.11 Share of population practising open defecation in India, Sri Lanka, Bangladesh and Pakistan

Table 5.20 Share of Households with Access to Sanitation Facilities by Social Group (2011)

Type of sanitation facility	*ST*	*SC*	*General*	*Total*
Latrine facility within premises	25.3	37.9	44.4	50.2
Water closet	15.3	23.9	42.3	36.4
Pit latrine	6.7	9.2	9.8	9.4
Other latrine	0.6	0.7	1.1	1.2
No latrine	77.4	66.1	46.7	53.1
Of which public toilets	2.7	4.1	3.1	3.2
Of which open defecation	74.7	62	43.6	49.9
Closed drainage	6.1	11.3	21.4	18.1
Open drainage	16.7	35.3	34.6	33
None	77.3	53.4	44	48.9

Source: Chandramouli, C. (op. cit.).

huge legacy as late as four decades after Independence but continues to have more than half its population in this category until 2015.

With regard to ST areas, Table 5.20 is clear in the picture that emerges. Scheduled Tribe areas are worse off in all sanitation indicators.

As we can see from the table, the share of households with latrine in premises is lowest for ST and is far below SCs and average for all households. What is more, those who do not have a toilet inside their house overwhelmingly resort to open defecation. And of those who have a toilet, the lowest share with water closet and pit latrines is that of STs.

In terms of drainage facilities, the largest share for no drains or open drains is that of the STs and the lowest share for closed drains is also that of the STs. In terms of bathing facility too the picture that emerges is not encouraging.

This overall picture is also supported by disaggregated data at the block level. Census 2011 suggests that there is a strong state-wise correlation between concentration of ST population at the block level and share of households with no latrines. The results of our calculations are summarized in Table 5.21.

We notice that as the tribal concentration increases across blocks, the share of households without latrines within their premises also increases. There is a significant and positive correlation in all CITB states between share of tribals in population at the sub-district level and the share of households without toilets within premises. All tribal blocks in the CITB falling in the states of Chhattisgarh, Madhya Pradesh, Jharkhand, Odisha, Rajasthan, Gujarat, Maharashtra and Bihar show increases in the correlation coefficient if the share of ST population is further narrowed to 5% or above.

Broad categories like "within premises" do not go into adequacy of numbers either. Even if a household has a toilet within premises, is provision of one toilet enough for the entire family, assuming other conditions being the

Table 5.21 Correlation Between Tribal Concentration and Households Without Latrine Facilities Within Premises

	State	*All blocks*			*>5=% ST pop*		
		R	*N*	*Sig at*	*R*	*N*	*Sig at*
1	Rajasthan	0.4	244	0	0.33	138	0
2	West Bengal	0.41	341	0	0.22	154	0
3	Jharkhand	0.23	259	0	0.29	215	0
4	Odisha	0.42	477	0	0.43	350	0
5	Chhattisgarh	0.21	149	0.01	0.23	140	0
6	Madhya Pradesh	0.28	342	0	0.32	260	0
7	Gujarat	0.45	225	0	0.55	81	0
8	Maharashtra	0.35	355	0	0.41	199	0
9	Andhra Pradesh	0.32	1,128	0	0.36	456	0
	All India	**0.05**	**5,955**	**1**	**-0.11**	**2,840**	**0**

Source: Calculated from Census 2011.

same? It would seem not. The PEO carried out an evaluation of the TSC in 20 states of the country in 2013, which finds that in the 73% households where at least one member of the family practises open defecation, 66% are those forced to do so because individual or community latrines are not available, 1% do so because toilets at home are not sufficient while 6% do so *in spite of* having toilets (PEO, 2013; p. 68).

Further, the study also points out that despite regional variations, given the availability of toilets, less than 10% of households in all states in nine out of the 20 states surveyed practise open defecation. Open defecation was also found to be the highest in India's heartland, including the tribal-dominated states of Jharkhand, Madhya Pradesh and Odisha.

The Total Sanitation Campaign, which was meant to be a demand-driven sanitation programme, did increase the sanitation coverage in terms of individual household latrine (IHHL) but was plagued by several problems. The meagre amount given to beneficiaries was hardly sufficient to build a big enough toilet. Also, it was found that a large share of toilets shown as constructed under the TSC were actually defunct and achievements fell far short of targets.[47]

Despite these shortcomings, the NSSO's 69th round noted that in rural areas across the country the share of households without access to toilet facilities was 59.4%. Looking at the states of the CITB, we find higher than national averages in Jharkhand (90.5%), Chhattisgarh, (76.7%), Madhya Pradesh (79%), Odisha (81.3%) and Rajasthan (73%). Gujarat is marginally lower (58.7%), while Maharashtra is lower at 54%. The only state to be substantially lower than the national average in the CITB is West Bengal with a share of 39.7%.[48]

The Swacchata Survey of the NSSO conducted during May–to June 2015, further points out that in rural areas as a whole, only 1.7% of the households

in 2012 did not use toilets despite having access to them.[49] Insights from the field, however, seem to suggest that this is an optimistic figure. Field-based evidence also suggests how low financial allocations, targeting without paying attention to detail, minimum community involvement and tardy planning have plagued the sanitation programmes in the country. Toilets fast become store houses for grain or an adjunct to the main house where some other activity is conducted but are not used for the purpose that they are built. It is important to remember this as we go on to look at the Swacch Bharat Mission, which comes with a whole new plan and monitoring at the level of the Prime Minister's Office.

Swacch Bharat Mission

The Swatch Bharat Mission (SBM) was launched on 2nd October 2014 by the Prime Minister of India and has since become the flagship sanitation programme of the Government of India. The mission aims to achieve "Swacch Bharat" (or "Clean India") by 2019 (Ministry of Drinking Water and Sanitation, Government of India: *Guidelines for Swacch Bharat Mission (Grameen)*, 2014). "Swacch Bharat" itself is understood as making Gram Panchayats Open Defecation Free (ODF) and improving the levels of cleanliness in rural India through solid and liquid waste management practices.

The mission's first departure from traditional sanitation programmes was to substantially increase the amount allocated for each IHHL to ₹12,000 (on a 75:25 cost-sharing basis between Centre and state). This amount is available to all BPL families and APL families which are "restricted to the SC, ST or small and marginal farmers, landless families with homestead, physically handicapped and women headed households" (SBM Guidelines, ibid.). The guidelines also specify financial allocations for solid and liquid waste management, according to population norms.[50] The progress under SBM in terms of construction of toilets can be guaged from the fact that between October 2014 and November 2017, nearly 5.2 crore toilets were added to the stock across India.[51] Yet, there is a long way to go before the goal of 100% coverage is reached.

The overall progress under SBM is tracked through a dedicated website. Data on the website is available state-wise and also by categories such as ST-dominated geographies within a state. We have tried to understand the trends in sanitation before and post-SBM to understand if SBM has indeed accelerated the pace of toilet construction using official data. However, here we were beset with some difficulties. The data portals are understandably reorganized to reflect the needs of SBM. The Total Sanitation Campaign data which were hitherto available are no longer available on the site. We were able to obtain data upto April 2013 from the GOI's portal http://data.gov.in. These data for IHHLs are from 2000–01 to 2012–13 and are broken down into categories such as BPL, ST and so on. We were also able to access

Table 5.22 Annual Additions to ST IHHL Stock (NBA and SBM)

Year	*WB*	*RA*	*OD*	*MA*	*MP*	*JH*	*GU*	*CG*	*AP*	*CITB*
	Actual additions as per NBA data									
2000–01	188,622	91,201	68,135	444,908	136,967	91,605	197,343	59,587	154,939	1,433,307
2001–02	16,628	0	0	0	0	0	0	0	0	16,628
2002–03	4,649	0	5,213	1,061	0	0	0	0	0	10,923
2003–04	173,084	4,557	55,013	7,141	1,572	789	12	84	120,442	362,694
2004–05	53,633	9,466	49,102	10,799	46,912	4,315	224	461	29,114	204,026
2005–06	35,911	6,236	52,252	32,651	68,545	8,321	56,490	7,332	33,986	301,724
2006–07	53,561	7,234	72,549	92,583	64,084	29,017	129,202	22,001	2,449	472,680
2007–08	34,730	22,928	110,613	98,706	103,192	83,182	161,422	85,026	14,218	714,017
2008–09	28,118	68,377	89,108	60,607	143,571	91,126	142,618	50,637	8,936	683,098
2009–10	27,927	51,129	84,521	75,891	196,427	69,822	98,205	67,645	17,225	688,792
2010–11	26,574	56,213	99,197	66,397	210,502	86,324	43,450	46,384	27,815	662,856
2011–12	38,375	75,061	62,100	84,882	127,496	15,353	40,310	12,720	51,325	507,622
2012–13	34,163	14,395	22,706	7,741	90,623	6,574	3,771	5,843	26,609	212,425
	Projected additions as per NBA data									
2016–17	20,698	79,643	104,927	100,336	241,158	807,13	105,763	59,115	27,125	819,479
2017–18	18,251	85,258	109,811	106,175	257,307	857,45	110,969	62,722	27,067	863,306
	Actual additions due to SBM									
2016–17	187,595	455,763	312,891	242,890	468,479	234,510	247,540	307,792	122,023	269,6703
2017–18	123,905	614,069	105,299	311,560	649,249	248,729	191,295	414,667	327,136	275,6176

Source: Calculated on the basis of data available from Census 2011, SBM website and the GoI data portal (both references given earlier).

data according to similar categories from the SBM website for 2016–17 and 2017–18.[52]

A simple trend calculation (using the "trend"[53] function in a normal spreadsheet computer program) shows that the annual additions to toilets under Nirmal Bharat Abhiyan (NBA) were tapering off. With the arrival of SBM a dramatic jump took place around 2016–17. Table 5.22 shows this jump.

As we can see from the table, the jump in additions to toilets is dramatic. So it would be true to say that SBM has substantially accelerated the pace of toilet construction across the country. This jump notwithstanding, it is important to remember that SBM will still take time to cover all tribal households with IHHLs. Based on this simple exercise, Table 5.23 looks at possible time horizons by which different states in the CITB will accomplish the task of 100% ST coverage in terms of household latrines.

These are based on trends of the past decade or so. While such predictions are typically hazardous, they do point to some order of magnitude in terms of the problems being faced. If we take the Census 2001 stock figures as the base situation and add the annual progress achieved by NBA to arrive at the toilet stock each year, we find that there is a fairly high annual average growth rate of toilets. When we compare this with the compound annual growth rate as calculated on the basis of two time points – Census 2001 and Census 2011, we find that the CAGR is considerably lower (Table 5.24).

The difference could partially be explained by differences in methodology of enumeration or other "technical" factors. However, a fair share of the difference will also lie in the fact that as new stock gets added, old stock gets depleted, is rendered out of use or "slips" back. Also, capturing any real phenomenon in averages (such as growth rates) makes several assumptions

Table 5.23 Projected Years by Which Full Coverage of Census 2011 Households Might be Achieved

State	*Year by which all Census 2011 ST households is likely to be covered (projected)*
West Bengal	2024–25
Rajasthan	2032–33
Odisha	2029–30
Maharashtra	2031–32
Madhya Pradesh	2025–26
Jharkhand	2023–24
Chhattisgarh	2037–38
Andhra Pradesh (including Telangana)	2039–40
CITB	2029–30

Source: Calculated on the basis of data available from Census 2011, SBM website and the GoI data portal (both references given earlier).

Table 5.24 Comparison of Growth Rates in IHHL Stock – NBA and Census 2000–01 to 2010–11

	WB	*RA*	*OD*	*MA*	*MP*	*JH*	*GU*	*CG*	*AP*	*CITB*
R	0.1418	0.1342	0.2992	0.0810	0.2401	0.1936	0.1900	0.2169	0.1116	0.1611
CAGR as per census	0.0512	0.0469	0.0889	0.0516	0.0714	0.0450	0.0853	0.1581	0.0699	0.0684
Difference	-0.0906	-0.0872	-0.2103	-0.0294	-0.1687	-0.1486	-0.1047	-0.0588	-0.0417	-0.0928
%	-9.0574	-8.7215	-21.0309	-2.9408	-16.8663	-14.8600	-10.4745	-5.8768	-4.1705	-9.2793

Source: Calculated on the basis of data available from Census 2011, SBM website and the GoI data portal (both references given earlier).

about the real picture and hence is error-prone. However, if we were to take away the general trend that the data show, we find that the Census acts as a "reality check". This is a cause for concern.

In this section we have looked at the access to safe sanitation at the doorstep and also looked at the trends over time in provisioning. We find that the NBA did pick up momentum and tried to push the pace of toilet construction across tribal central India. We also find that the SBM has pushed harder in this direction and achieved success as well. On the basis of our data, we find that 100% toilet coverage is still some distance away. However, as we see later, a wealth of empirical and analytical studies shows us that toilet construction alone is not enough to ensure a open-defecation free India or an ODF tribal India.

Toilet Construction Alone is Not Enough

The acceleration of pace of toilet construction notwithstanding, it needs to be clearly understood that much like the drinking water programmes, toilet construction too has been haunted by the spectre of slipbacks. Typically, shoddy design issues, target-orientation (what the Planning Commission, 2012 refers to as a "mad rush" to meet targets) insufficient buy-in from the community and cultural factors seem to militate against adoption of toilets. As elaborated earlier, even in households which have access to toilets, there are members who prefer to defecate in the open. For instance, if there are high levels of poverty and even proper housing is not available to tribals, it is unlikely that they will feel enthused about building toilets. If one is built for them, it is unlikely that it will be used. Access to water to flush toilets is another concern which we analyse in a later section.

A major insight has also been provided in the RICE survey and subsequent authoritative work emerging from it (Coffey and Spears, 2017). If poverty and levels of education were sufficient to explain the presence of open defecation, it would be difficult to see a total sanitation revolution taking place in Bangladesh, which is close to eliminating open defecation altogether, for Bangladesh has lower per capita incomes and higher poverty than India does. One set of factors could relate to centralized, one-size-fits-all type of design approach which sanitation programmes have been beleaguered with. There is very little community participation in deciding such critical variables.

However, an even more important and serious challenge emerges when we encounter the fact that traditionally the onus of emptying soak pits and in general cleaning faeces has been entrusted to a particular sub-stratum of Indian or Hindu society – which are the Dalit castes, who also encompass within them the inhuman task of manual scavenging. The task of cleaning faeces is considered dirty and onerous by non-SC communities. With upward caste and economic mobility more and more members of the SC community are moving out of such manual scavenging and hence the

question that arises is – who will clean the pits? Hence, caste Hindu families see this as a deterrent in adoption of the pit latrines being promoted by the government.[54] How much of this however applies to tribal India? It would appear on the basis of anecdotal factors that such a stigma cannot entirely be ruled out. Let us remember that the tribals of central India have had a history being treated as social outcasts by upper caste Hindu society, even though they may not formally be as much of a part of the caste hierarchy as Dalits are. Given this, the demand for upward social mobility will also place a demand on them that they eschew certain "dirty" practices. Hence, despite being socially looked down upon and in several instances stigmatized as "criminal", "violent", "dirty" etc., it should not be surprising to see that they too are eager to be counted as part of the socially better-off castes.[55]

The RICE study also points to the fact that low toilet use at the individual level can coexist with toilet availability at the household level. Because individual toilet use preferences are dictated by other concerns such as the one cited earlier. The work of Coffey et al. also points to the fact that in India there is a preference for expensive options for toilets. However, government subsidies do not adequately cover for these expensive options. This acts as a disincentive to build or use them. Given that the government does not promote inexpensive options (dry toilets) or a "middle tier" such as collective toilets and does not provide enough subsidy to cover the costs of an IHHLs, there is a situation of conflict between what is provided and what is perceived to be ideal by the end-user.

SBM will need to address such structural issues before freedom from open defecation can be attained. At present, the focus seems to be more on building toilets without addressing such issues. Entering this turf will also mean coming face to face with peculiarly harsh realities such as the Indian Railways being the largest employer of manual scavengers (See Roy, 2016).

Availability of Water and Sanitation

A factor governing the adoption of latrines at home is obviously the availability of water either at home or very near the premises. Otherwise, the presence of latrines at home can pose an additional burden to fetch water, particularly on women and children. Or the latrines themselves can fall into disuse. Coffey et al. do not see water availability as a conclusive factor in toilet adoption. They find that despite availability of adequate piped water at the household level, many households do not adopt toilets. This is likely due to other factors elaborated earlier. While certainly water availability may not be a necessary condition in terms of toilet adoption, it could well be a sufficient condition, in that, where flush toilets are in use, there must be enough water to flush them. BRLF partners' field experiences certainly seem to suggest this as several toilets built by government are found to be in disuse because water becomes a crucial issue.

Table 5.25 displays results of a correlation analysis for CITB states. The correlation between share of households with drinking water availability within the premises and with latrines within the premises is extremely strong and significant in almost all cases.

The table shows a significant positive relation between the two variables indicating that in order for sanitation to work, provision of water is an important requirement. This is also confirmed by the PEO study (ibid.), which finds evidence from its surveys that percentage of households with water in premises is higher for those households which have toilets than those that do not. The data are reproduced from this report in Table 5.26.

Table 5.25 Correlation Between Non-Availability of Water and Non-Availability of Latrines Within Premises

State	*Correlation coefficient (R)*	*Number of observations*	*p-values*
Chhattisgarh	0.602013	149	4.64E-16
Jharkhand	0.798241	259	1.63E-58
Rajasthan	0.870830	244	1.37E-76
West Bengal	0.187010	341	5.18E-04
Odisha	0.814585	477	1.98E-114
Madhya Pradesh	0.811202	342	3.16E-81
Maharashtra	0.649830	355	5.71E-44
Andhra Pradesh	0.719518	1,128	1.67E-180
Gujarat	0.799447	225	2.95E-51
CITB	0.697329	3,520	0.00E+00

Source: Calculated from Census 2011.

Table 5.26 Adequacy of Water Supply for Flushing in States Where Households Were Selected Randomly[56]

Adequacy of water for flushing	*Andhra Pradesh*	*Tamil Nadu*	*Maharashtra*	*Gujarat*	*Karnataka*	*Average for these states*
As a % of households with toilets	66.1	96.0	97.6	98.9	100	92.5
As a % of households without toilets	33.4	41.4	66.6	68.3	59	53.7

Source: PEO (2013).

Electricity

About 25% of India's population is without access to electricity. India alone accounts for nearly 300 million people of the world's 1.1 billion people without electricity. And 75% or 800 million people in India continue to rely on firewood, dung cake, charcoal and similar sources for their cooking energy requirements.[57] This definitely suggests that India has a long way to go before it satisfies the energy needs of its population. The situation turns more serious when we look at tribal areas, which are systematically more deprived than other geographies in our country.

Village Electrification and Low Bar for Household Electrification

The Rajiv Gandhi Grameen Vidyutikaran Yojana was launched in 2005 and became perhaps the largest rural electrification programme in the world. It provided for 90% capital subsidy towards overall cost of the projects under the scheme and free-of-cost service connections to all BPL households. As part of its scope are also creation of a Rural Electricity Distribution Backbone (REDB) "with at least one 33/11 kV (or 66/11 kV) sub-station in each block", Village Electrification Infrastructure (VEI) with at least distribution transformer in each village/habitation, also consisting of LT lines/LT AB cables.

As per a report of the Program Evaluation Organization (PEO, 2014) the scheme has resulted in 93.3% success in terms of households electrification, though in terms of village electrification, the figure was around 53%. After its initial success an outlay of ₹28,000 crores was sanctioned for it in the 11th Plan. However, as we will see later, electrification here *refers more to the provisioning of the infrastructure required for electricity to reach households than to the actual fact of electricity reaching the intended households*. For one, there is a difference in what the government refers to as "electrification" which means extending poles, wires and transformers etc.; and "energization", which refers (presumably) to the actual event of electricity flowing through the equipment to the last mile. For another, as India strides forward as a global economic power in the twenty-first century, it would be anachronistic to maintain the village as a unit of electrification – surely for us to claim inclusive growth, the unit of measurement should be households rather than villages.

Around the launch of RGGVY an important change was the redefinition of the meaning of an electrified village. Prior to October 1997, a village was deemed electrified if "electricity is being used within its revenue area for any purpose whatsoever" (RGGVY website). After October 1997, "a village will be deemed to be electrified if the electricity is used in the inhabited locality, within the revenue boundary of the village for any

purpose whatsoever". However, post 2004–05, the definition of village electrification became as follows:

> As per the new definition, a village would be declared as electrified, if:
>
> - Basic infrastructure such as Distribution Transformer and Distribution lines are provided in the inhabited locality as well as the Dalit Basti hamlet where it exists.
> - Electricity is provided to public places like Schools, Panchayat Office, Health Centers, Dispensaries and Community centers.
> - The number of households electrified should be at least 10% of the total number of households in the village.
>
> (RGGVY website: http:// rggvy.gov.in/rggvy/ rggvyportal/definition_electrified_village.html)

This is a more comprehensive definition than the previous ones.

Post 2014, RGGVY was subsumed under the Deen Dayal Upadhyaya Gram Jyoti Yojana (DDU-GJY). The rural electrification component for extending electricity supply to villages has been taken over by the Gramin Vidyutikaran Abhiyan (GVA) which has a portal of its own with a dashboard (garv.gov.in). The main mandate of GVA is to electrify the balance 18,500 unelectrified villages in a period of two years (see DDU-GJY, 2015). Table 5.27 provides us an insight into the status of electrification as per GARV data.

As the table shows, the village electrification component has progressed fairly rapidly and most states are above 90% connectivity. As per the GARV

Table 5.27 Village Electrification as on January 2017

States/ UTs	*Total villages as per 2011 Census*	*Cummulative inhabited village electrified – as on 31st January 2017*	*Cummulative inhabited village electrified – as on 31st January 2017 (%)*
Rajasthan	43,264	43,195	100
Chattisgarh	19,567	19,091	98
Gujarat	17,843	17,843	100
Madhya Pradesh	51,929	51,825	100
Maharashtra	40,956	40,956	100
Andhra Pradesh	16,158	16,158	100
Telangana	10,128	10,128	100
Jharkhand	29,492	28,526	97
Odisha	47,677	46,277	98
West Bengal	37,463	37,451	100
Total	**314,477**	**311,450**	**99**

Source: DDU-GJY portal (garv.gov.in).

Table 5.28 Status of Household-Level Electrification as on 31st October 2016

	Total rural households (in crores)	*Balance un-electrified rural households (in crores)*	*Balance %*	*Electrified share %*
Andhra Pradesh	1.42	0.15	11	89
Chhattisgarh	0.44	0.13	30	70
Gujarat	0.68	0.1	15	85
Jharkhand	0.47	0.32	68	32
Madhya Pradesh	1.11	0.46	41	59
Maharashtra	1.3	0.34	26	74
Odisha	0.81	0.52	64	36
Rajasthan	0.95	0.4	42	58
West Bengal	1.37	0.82	60	40
Total CITB	**8.55**	**3.24**	**38**	**62**
All India	**16.78**	**7.5**	**45**	**55**

Source: Response to Rajya Sabha 241 Unstarred Question No.2961. (https://data.gov.in/resources/status-electrification-rural-households-rhhs-census-2011–31102016frommministry-power)

dashboard, by January 2018, work is in progress to electrify the balance 134 inhabited villages which remained to be electrified. But at the household level unfortunately, this feel-good picture breaks down. Table 5.28 shows why.

As the table shows, the performance at the level of household electrification is poor. The CITB states show a higher-than-national average share of households electrified,[58] but it is nowhere close to 100%. On the other hand, the gap between share of households electrified and share of villages electrified is wide – West Bengal, with a 100% village coverage, has only 40% of households covered, Odisha 98% and 36%, Rajasthan 100% and 58%, Madhya Pradesh 100% and 59% and so on.

We need to be clear that these data are not broken down into ST and non-ST areas since such a breakdown is not available on the GARV dashboard. The contrast may be more in ST-dominated areas.

With respect to electrification in ST areas, data from the Census 2011 offer information. Households with electricity account for 67.2% of all households and 71.3% of households in the general category. The share is lowest for ST households with only 51.7% ST households reporting electricity within the house. This is lower than the share of SC households which stands at 59%. In contrast, share of households using kerosene is the highest for STs at 45.6%. For all categories, the share stands at 31.4%, while for the general category, the share is 27.6% (see Figures 5.12 and 5.13).

Table 5.29 reflects a generally positive and highly significant correlation between share of tribal population at the sub-district level and the share of households without electricity, in each case except Madhya Pradesh and West Bengal, where they are not significant. In Jharkhand, the correlation

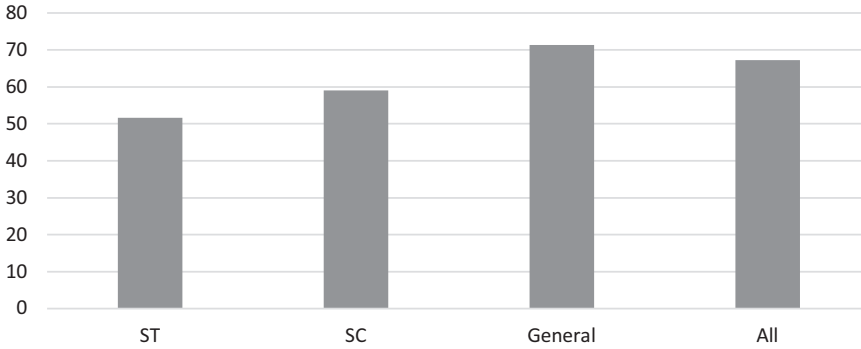

Figure 5.12 Share of electrified households

Source: (Census 2011).

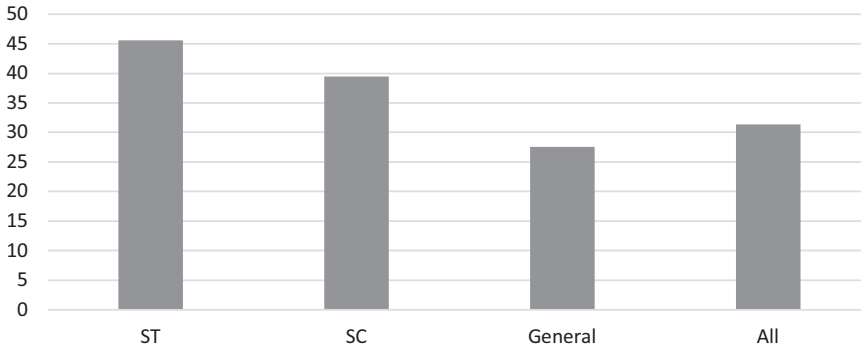

Figure 5.13 Share of households using kerosene

Source: (Census 2011).

Table 5.29 Correlations Between Tribal Concentration and Households Without Electricity in Premises at the Block Level

	r	*N*	*p-value*
State			
Chhattisgarh	0.82741	149	0.00000
Odisha	0.66220	477	1.63E-61
Maharashtra	0.63766	355	6.54E-42
Andhra Pradesh	0.59515	1,128	0.00000
Rajasthan	0.44060	244	5.21E-13
Gujarat	0.31960	225	0.00000
Jharkhand	0.19624	259	0.00150
Madhya Pradesh	0.03889	342	0.47350
West Bengal	0.02942	341	0.58828
CITB	**0.43**	**3,520**	**2.62E-158**

Source: calculated from Census of India 2011.

is low although significant. Overall, for the entire region we observe a high positive and significant correlation.

The CEEW Survey

The state-level survey conducted by CEEW (op. cit.) is an excellent commentary on the actual state of household electrification and access to electricity. A report is based on a survey of 8,566 households in the states of Bihar, Uttar Pradesh, Madhya Pradesh, Jharkhand, Odisha and West Bengal.

In terms of access to electricity at the household level, the analysis looks at dimensions such as capacity, duration, reliability, quality, afforability and legality. It then assigns a tier (from Tier 0 to Tier 3) to each household which describes progression in access to electricity (Tier 3 is better than Tier 0). A composite tier is then granted based on the minimum tier achieved across all dimensions. Finally, an index is created at the district, division and state level which is a weighted average of share of households in each tier.

Table 5.30 summarizes the main findings state-wise in terms of electricity access. The study finds that West Bengal is the best performer in terms of electricity access, with the greatest share of households in Tier 3. However, this best is in relative terms only, since only 16% of the sample in the state find themselves in this tier. Madhya Pradesh and Odisha have 4% and 3% respectively while Jharkhand has no household in this tier. On the other hand, 73% and 64% respectively of households in Jharkhand and Madhya Pradesh are in Tier 0 (the worst). In Odisha this share is 47% and in West Bengal it is 25%.

What should serve as a wake-up call is that about 50% of the households classified in Tier 0 are also those who are classified as "electrified". This means that their electricity connection is of virtually no use to them, facing challenges of reliability, durability, quality and so on. In the other 50% in this tier, two-thirds of the households did not take an electricity connection despite having a grid in the vicinity, citing reasons such as affordability (both of initial and monthly charges) and reliability.

Table 5.30 Household Access to Electricity in Different States (Percentage Share of Households in Each State in Different Tier Categories)

Tier	*Bihar*	*Jharkhand*	*Madhya Pradesh*	*Uttar Pradesh*	*West Bengal*	*Odisha*
Tier 3 (best)	1	0	4	0	16	3
Tier 2	2	5	4	4	19	12
Tier 1	18	22	28	24	40	39
Tier 0 (worst)	79	73	64	71	25	47

Source: CEEW (2015).

This is indeed a revealing finding, which means that both the methodology for measuring electrification and indeed the benchmarks adopted for classifying areas as electrified or otherwise need a hard look.

In the case of DDU-GJY/RGGVY projects or rural electrification in general, we are also faced with similar issues of process and quality as with drinking water and sanitation. For instance, the 12th Plan documents note that some of the villages that have been electrified have not been "energized", particularly in the states of Bihar, Odisha, Jharkhand and Assam, probably referring to the fact that despite laying down of electric lines and sub-stations etc., electricity has not flowed. Even in villages which have been electrified *and* energized, there are issues of stability, duration and timings. For instance, the timing of electricity assumes gender neutrality, whereas greater attention needs to be paid to women, their security and livelihoods needs. Also, states are reluctant to extend new connections because of either high cost of power or a lack of supporting network. The 12th Plan document also notes other areas of concern such as the non-availability of electricity for even the minimum hours of 6–8 hours per day, need for upgradation of capacity and cumulative bills being presented by the distribution companies to the consumers which poses greater burden on the poor.

Sreekumar et al. (2011)[59] also point to other areas of concern. One, planning has been top-down and not location-specific. There has also been a hurry to rollout the programme universally without thoroughly understanding what is needed to do so, and hence the technical, managerial and institutional preparation that should have taken place with a scheme as massive as this did not take place. Further, the RGGVY has made too much of a push for grid-based electrification as the only solution instead of going in for a technological mix. There are also shortcomings in monitoring as well as coordination among the plethora of stakeholders involved in implementation.

It is also observed that PRIs are not getting strengthened as they should be in the course of provisioning electricity. In states where PRIs buy electricity from distribution companies, the connections to GP are unmetered and billing done on the basis of average consumption based on installed capacity. As a result, especially in a scenario of irregular electricity supply, GPs lose out because they are paying for something they are in fact not getting.[60] Furthermore, while in terms of connecting unconnected villages, an evaluation study finds that the progress is only average when it comes to deepening connectivity in already electrified villages and so is the timeliness of electricity supply[61] (PEO, 2014, op.cit.). Other reports[62] also find irregularity of supply, mismatch between supply and electricity infrastructure and poor health of distribution companies acting against benefits reaching the poor. There is also lack of awareness among the poor on the provisions of the scheme and their entitlements.

The issues with respect to electricity are also to a large extent qualitative. While progress in electrifying villages has been achieved, quality of power

remains a concern. It is also true that despite villages being connected, individual households may not have got energy. This is exemplified by our correlation analysis which correlates share of households without electricity with the share of tribal population in a block. Despite the very high rate of electrification report, at the household level another picture emerges. This was also evident in reports from the ground by BRLF CSO partners, who were consulted during the preparation of this chapter.

For regularity of supply, one recommendation of the 12th Plan, which is now under implementation in several states, is the separation of agricultural feeders from domestic feeders so that the agricultural demands do not impinge on household consumption.

Tribal Geography, Demographics and Capacity

The census data in the preceding sections looks at access to infrastructure in tribal-dominated areas. The access data, however, pertain to *both* tribals and non-tribals. We find conclusive evidence that on the basis of census data, there is reason to believe that tribal geographies are not doing as well as their non-tribal counterparts.

We find from our discussions in the preceding section in fact that there is a systematic lagging behind of tribal-dominated areas in all aspects of social infrastructure provisioning – drinking water, sanitation, electricity and so on. Despite attempts to speed up provisioning, there are issues which remain with respect to adequacy, regularity and maintenance. So, we could conclude that tribal geographies are underserved.

However, the question remains – *what of the access of tribals* to social infrastructure within such geographies? This is an important question in that the answer to this would determine whether a reorganization of tribal geographies along demographic lines to ensure that tribals are in a majority and unhindered by the non-tribal axis of power is necessary or sufficient or neither for tribal communities to be better served. The logic of the sixth schedule is in fact such autonomy at a certain level of aggregation of tribal population. There have been arguments that an extension of such sixth schedule type autonomy to fifth schedule areas after a reorganization of administrative boundaries to bring together tribal dominated geographies is important for the empowerment and development of fifth schedule areas.[63]

When we look at Census (2011) data, a somewhat counter-intuitive picture emerges. It would appear that STs within tribal-dominated areas are worse off than those in less tribal-dominated areas! In fact, as the proportion of STs in the total population at the sub-district and district levels increases, the proportion of STs who have access to electricity, latrines and drinking water comes down (Table 5.31).

Table 5.31 Correlation Coefficients for ST Population Share and Access to Selected Amenities

Coefficient	*Share of ST population at sub-district level*	*Share of ST population at district level*
Share of ST households in block who receive tap water from treated source	-0.3640663	-0.3287734
Share of ST households at the block level which had access to drinking water source within premises	-0.3709609	-0.3363326
Share of ST households in block with access to piped sewer system	-0.16675	-0.1467939
Share of ST hlusehold in block with latrine within premises	-0.3524614	-0.3160626
Share of ST households at the block level which had access to electricity within premises	-0.3835345	-0.3975695
Share of all households at block with no access to drinking water within premises	0.4073968	0.3453606
Share of all households at block with no access to latrines within premises	0.4203118	0.3636672

Source: Calculated on the basis of data in Census 2011 (House Listing and Housing Census, 2011, Table HH-14).

It is clear from the table that as share of tribals in total population at the district and sub-district levels increases:

- Share of tribals who have access to drinking water, sanitation and electricity at their premises decreases;
- Share of all category households who **do not** have access to drinking water, sanitation and electricity at their premises increases, or the share of all category households who **have** access to these amenities decreases.

In other words, being in a tribal-dominated area (tribal dominated at the sub-district and the district level) is bad for both tribals and non-tribals alike. To find an answer to this, we need to look at state capacity to deliver as a crucial determining factor. It has been observed in almost all rural

development interventions that lack of capacity to deliver hampers quality of outcomes at the grassroots level. Thus, despite allocation of crores of rupees annually, impacts are not felt as they should be.

To look at the data to see whether this is borne out, we take a cue from Murgai et al. (ibid.), who have shown how the lack of state capacity in poorer states leads to rationing of MGNREGA employment, despite the fact that there is demand and that MGNREGA targets the poor correctly. Poverty rates in the states have been used as a proxy for state capacity.

In our analyses we took two data sets to understand the lack of capacity at the block and district levels. We look at the SECC data on exclusion – that is share of households of all categories excluded at the block level due to any one reason as a measure of poverty or prosperity. To use a satisfactory measure of poverty at the district level is not an easy task since such estimates do not exist. We took district-level data from the "Levels of Living" study,[64] which uses the NSSO's Consumer Expenditure Survey of 2004–05 to arrive at district-level estimates of inequality, poverty and levels of living. The share of poor households in the study at the district level forms the measure of poverty at the district level. Although poverty at the state level has a bearing on sub-district level performance as well, we have focussed on sub-district and district levels precisely because within a state there is a wide variation in district-level patterns of poverty and within a district, likewise, there is wide variation in sub-district-level patterns of deprivation.

Table 5.32 examines the results of a simple linear regression analysis where the relationships between the share of ST households in the CITB states which has access to electricity, drinking water at premises, sanitation, piped water supply and sewerage on the one hand and the share of SECC exclusion at the block level and the district poverty ratio at the district level on the other hand.

We note that all coefficients relating to the predictor SECC exclusion at the block level are positive and strongly significant. All coefficients relating to the predictor district-level poverty are negative and significant (except for the regression on piped sewer system).

This implies that:

- As the share of excluded households at the block level rises (or in other words, as the share of better-off households at the block level rises), the share of STs with amenities rises as well.
- This means that as the share of *included* households at the block level (or households included into the SECC because of their deprivation) increases, the share of STs with amenities decreases.
- As the share of poor households at the district-level increases, the share of ST households with amenities decreases.

Table 5.32 Regression Results for Share of ST Households With Amenities and Block- and District-Level Poverty Estimates

Dependent variables	*Intercept*	*Block exclusion share % (SECC all categories)*	*District share of poor %*
1. Share of ST households with electricity			
Estimate	65.1055	38.7338	-0.6595
Standard error	1.3678	2.5913	0.0222
t-value	47.6000	14.9500	-29.7500
Pr(>|t|)	< 2e-16	< 2e-16	< 2e-16
Significant at	0.0000	0.0000	0.0000
F-statistics: 979.426 on 2 and 3464 DF. P-value:0.			
2. Share of ST households who have latrine within premises			
Estimate	20.523160	14.053950	-0.198660
Standard error	1.132580	2.145650	0.018360
t-value	18.120000	6.550000	-10.820000
Pr(>|t|)	< 2e-16	6.61e-11	< 2e-16
Significant at	0.000000	0	0.000000
F-statistics: 145.4429 on 2 and 3464 DF. P-value:0.			
3. Share of ST households with tapwater from treated source			
Estimate	13.269940	34.38	-0.237290
Standard error	1.126000	2.13	0.018250
t-value	11.790000	16.11	-13.000000
Pr(>|t|)	<2e-16	<2e-16	<2e-16
Significant at	0.000000	0	0.000000
F-statistics: 401.5213 on 2 and 3464 DF. P-value:0.			
4. Share of ST households with drinking water source located within household premises			
Estimate	22.645540	13.5	-0.199790
Standard error	1.087130	2.06	0.017620
t-value	20.831000	6.55	-11.338000
Pr(>|t|)	< 2e-16	6.42E-11	< 2e-16
Significant at	0.000000	0	0.000000
F-statistics: 154.8882 on 2 and 3464 DF. P-value:0.			
5. Share of ST households with piped sewer system			
Estimate	-1.276258	10.32	0.006255
Standard Error	0.345054	0.65	0.005593
t-value	-3.699000	15.79	1.118000
Pr(>|t|)	0	< 2e-16	0.263500
Significant at	0.000000	0	Not significant
F-statistics: 150.0889 on 2 and 3464 DF. P-value:0			

Source: Calculated from data available in Census of India (2011), SECC (2011) and Chaudhuri et al. (ibid.).

We get similar results if we use RBI data on district-level bank deposits per capita instead of district-level poverty ratios as a district-level indicator for "prosperity".

The aforementioned should not be read as a negation of a demographic–geographic reorganization of tribal areas, however, much less

as an indictment of the concept of decentralization embodied in PESA laws. In fact, another we could say that the poverty of these geographies represents both, the lack of capacity and the lack of a strong voice of the people in the decision-making process. Decentralization, devolution and autonomy are important for political empowerment of the extremely marginalized and poor tribal populations and will mean that some of the most marginalized have a voice. What we are referring to above however is that for the decentralization to really become effective on the ground, capacities will need to be created. If panchayat institutions are armed with such capacities, they will become not only empowered to take decisions but (a) to broaden the universe of choices and (b) to have these decisions implemented effectively on the ground. The creation of capacities is thus, essential for genuine decentralization and empowerment of tribal areas.[65]

Irrigation

Since 1990, the performance of Indian agriculture has been poor. For the first time since the mid-sixties, the 1990s witnessed a rate of growth in food grain production that was lower than the rate of growth of population. While irrigated agriculture appears to be hitting a plateau, dryland farming has suffered neglect. Available data shows that the period 1990–2000 was not a happy decade for Indian agriculture. The overall growth rate of crop production declined from 3.72% per annum of the previous decade to 2.29% in the 1990s, and crop productivity fell from 2.99% per annum to 1.21% in the same period (Planning Commission, 2002). The average yield levels of rice and wheat have more than halved between 1986 and 2002, indicating a plateauing of productivity in these two major food grains.

Table 5.33 Rates of Growth of Production of Principal Crops, All India

Crop	*1960/63–1970/73*	*1970/73–1980/83*	*1980/83–1990/93*	*1990/93–2005/08*
Rice	1.87	2.15	3.72	1.60
Wheat	8.28	4.51	3.73	1.92
Coarse cereals	0.90	1.16	0.81	0.88
Pulses	(-) 0.92	0.35	1.41	0.59
Total food grains	2.41	2.36	2.94	1.51
Oilseeds	1.79	1.98	6.19	2.34
Cotton	0.88	2.54	3.28	5.28
Sugarcane	1.78	3.81	3.15	2.03

Source: Indian Agricultural Statistics, various issues.

The output of crops grown and eaten by the poorest of the poor (coarse grains, pulses and oilseeds) and grown largely in the drylands, actually declined during this decade and the rate of growth of their yields decelerated considerably (Table 5.33).

Table 5.33 shows that the growth rates of output of nearly all crop groups declined during the 15-year period from 1990/93 to 2005/08, compared to the earlier decades. The rate of growth of food grain production also fell steeply from 2.94% recorded between 1980/83 and 1990/93 to 1.51% during 1990/93 to 2005/08. In particular, the growth rates of coarse cereals, pulses and oilseeds (covering about 45% of total cropped area and grown mostly in the rainfed drylands) was distinctly lower than what has been achieved in the previous decade. This re-emphasizes the fact that the gap between irrigated and dryland agriculture has steadily widened, with the productivity of the latter being less than half of the former.

The worst performers have been those regions where rainfed farming predominates. Rainfed drylands account for 48% of area under food crops and 68% of the area under non-food crops. In terms of crop groups, 77% of pulses, 66% of oilseeds and 45% of cereals are grown under dryland conditions. More than 90% of the area under sorghum and pearl millet, 57% of maize, 62% of cotton, 76% of gram, 88% of pigeon pea and nearly 80% of groundnut, sesamum, linseed and soybean are located here. Rainfed areas account for nearly 80% of the output of coarse cereals, nearly 50% of maize, 65% of gram and pigeon pea, 81% of groundnut and 88% of soybean.

For the first time since the mid-1960s, the 1990s witnessed a rate of growth in food grain production which was lower than the rate of growth of population. As a result, both per capita food grain production and availability were lower in 2000–03 than their pre-Green Revolution (1960–63) levels.

The 12th Five Year Plan notes a similar trend, with agricultural output growth rates dipping to almost pre-Green Revolution levels (Table 5.34).[66]

However, the plan document also notes that there has been a pick-up from the 11th Plan period when the rates of growth of value of output and factor productivity in agriculture (barring capital productivity) have started showing a revivial. The revival comes about because of greater public investment in the states which were not performing well hitherto. There are also greater variations in state performance as Table 5.35 shows.

The 12th Plan notes that the average and median growth rates of GSDP in agriculture for the country and for many states as well recovered after 2004–05. Moreover, all except a few hill states managed to substantially reduce variability in growth rates as well. The best performing states, with greater than 5% growth were Jharkhand, Chhattisgarh, Manipur, Tripura, Mizoram, Rajasthan, Gujarat, Maharashtra, Karnataka and Andhra Pradesh.

Table 5.34 Growth Rate of Agricultural Output and Productivity (1951–52 to 2011–12)

	Pre-Green Revolution	*Green Revolution*	*Wider coverage*	*Early liberalization*	*9th Plan*	*10th Plan*	*11th Plan*
	1951/52 to 1967/68	*1968/69 to 1980/81*	*1981/82 to 1990/91*	*1991/92 to 1996/97*	*1997/98 to 2001/02*	*2001/02 to 2006/07*	*2007/08 to 2011/12*
1. Value of output (2004–05 prices)							
Cereals	4.2	3.4	3.5	2.4	1.5	1	3
Pulses	3	0.7	3.4	0.8	0.3	1.8	4.2
Oilseeds	3.2	1.8	7.4	4.4	-2.5	7.5	4.5
All crops	3	3	3	3.1	2.3	2.1	3.4
Agriculture and allied sectors	2.3	2.4	3	3.1	2.6	2.4	3.6
2. Partial factor productivity							
Land productivity	1.2	2	2.7	3.3	2.6	1.8	3.1
Labour productivity	0.7	1.4	3	1.4	2.2	1.8	4.8
Capital productivity	0.2	-1.1	0.7	0.6	-0.9	-2.4	-2.7

Source: 12th Five Year Plan.

Table 5.35 Averages and Standard Deviations of Annual Growth Rates of GSDP From Agriculture and Allied Sectors

	Average of annual growth rates				*Standard deviation of annual growth rates*			
	1981–82	*1994–95*	*1981–82*	*1994–95*	*1981–82*	*1994–95*	*1981–82*	*1994–95*
Andhra Pradesh	3.9	2.8	4.7	5	10	13.8	9.7	6.5
Arunachal Pradesh	9.3	– 0.8	1.6	5	9.7	8.5	7.2	7.8
Assam	2.5	0.2	– 0.1	4.1	4.8	2.7	1.4	2.2
Bihar	1.1	3.1	7.4	3.3	12.9	22.7	24.1	11.9
Chhattisgarh	4.9	– 2.1	4.6	7.3	10.5	10.5	35.3	9.1
Gujarat	8.8	5.2	9.1	5.5	53.5	27	24.2	10.4
Haryana	4.5	2.1	2.7	4.2	12.2	7	3.5	5.7
Himachal Pradesh	2.8	0.3	8	1.5	12.4	2.1	6.2	9.7
Jammu and Kashmir	1.3	5.2	3.6	0.7	11.2	5.7	3.8	2.9
Jharkhand	1.1	4.3	5	8	12.9	7.2	19.6	5.1
Karnataka	4.5	4.1	– 2.9	5.1	8.7	5.7	15.1	6.8
Kerala	3.2	1.9	1.7	– 0.2	6.4	4.9	2.4	3.4
Madhya Pradesh	4.9	1.6	2.2	4.4	10.5	3.4	27.1	4.7
Maharashtra	5.7	3.1	1.6	5.3	17.3	10.1	6.9	11.5
Manipur	2.8	2.1	5.8	5.9	3.6	6.2	6.9	4.4
Meghalaya	1.1	7.2	4.8	3.3	11.2	6.2	2.1	2.2
Mizoram			0.1	5.7			4.8	5.9
Nagaland			14.1	2.5			9.7	2.3
Odisha	2.6	0	3.5	3.1	18.6	11	16.4	2.5
Punjab	4.9	2.5	1.8	1.8	4.6	4.4	2.6	1.6
Rajasthan	5.9	5.5	10.9	5.5	26.5	14.4	44.9	10.1
Sikkim		– 1.2	6.5	3.4		11.1	1	2.4
Tamil Nadu	5.8	1.8	– 0.5	4.6	12.7	9.6	14	7
Tripura	2.5	3.7	4	5.7	7.1	5.7	11.4	5.6

(*Continued*)

Table 5.35 (Continued)

	Average of annual growth rates				*Standard deviation of annual growth rates*			
	1981–82	*1994–95*	*1981–82*	*1994–95*	*1981–82*	*1994–95*	*1981–82*	*1994–95*
Uttar Pradesh	2.8	3.5	1	2.8	3.2	5.2	1.8	1.4
Uttarakhand	2.8	2.4	3.3	2	3.2	3.5	4.9	4.3
West Bengal	5.3	4.1	2.4	2.6	9.2	4.3	4	3.4
Sum of GSDP of:	3.4	2.5	2.1	3.8	5.8	5.2	6.5	2.8
All above states	-3.4	-3.3	-1.7	-3.7	-5.1	-4.6	-6.1	-2.5
High irrigation states	3.8	3.2	1.7	2.7	3.1	3.8	2.1	0.9
Medium irrigation states	2.9	1.8	3.1	4.2	9.8	9.1	8.5	3
Low irrigation states	3.6	2.8	1.5	4.5	5.6	4.7	9.1	5.3
High productivity states	4.1	2.9	2.5	2.1	3.9	3.1	2.2	0.8
Mid productivity states	3	2.4	2.1	3.7	4	6.6	4.5	2.3
Low productivity states	3.6	2.6	2.5	5.1	11	6.4	16.7	5.4
Across states:								
Median	3.6	2.5	3.5	4.2	10.5	6.2	6.9	5.1
Standard deviation	2.2	2.3	3.7	1.9				

Source: 12th Plan, Volume II.

Emerging Limits to Irrigation Development

A factor which has played a role in this deceleration of agricultural growth before the eleventh plan has been the limits to expansion of irrigation. Gross irrigated area in India went up by over 300%, from 22.56 million hectares (mha) in 1950–51 to 75.14 mha in 2000–01. At present, India has the largest irrigated agriculture in the world. However, a remarkable fact is that since the mid-1970s, the rate of expansion of irrigated area has undergone a decline. Both the rate of growth of irrigated area (1.83%) and average annual increments (1.28 mha/year) were the lowest in the period 1990–93 to 1999–2000, compared to earlier decades.[67]

India's water policy since Independence has relied on large irrigation projects and tapping of groundwater through tubewells. It is estimated that 4,400 (large, medium and small) dams have been constructed in India so far.[68] The pace of dam construction reached its peak in the mid-1980s, subsequent to which it slowed down considerably. A severe financial constraint restricts the possibilities of growth in surface irrigation based on big dams.[69] Evidence of problems such as waterlogging, salinity and alkalinity emerging in irrigation channels point to the ill-effects of over-irrigation. The Ministry of Water Resources estimated the area affected in irrigation project commands and came up with figures of 1.6 million hectares for waterlogging, 3.1 million hectares for salinity and 1.3 million hectares for alkalinity.[70] It should also be remembered that the track record of development projects in handling the problem of proper rehabilitation of displaced persons has been extremely poor.[71] About 75% of the displaced (an estimated 15–25 million people) have not been rehabilitated. These include the poorest of the poor in the country, such as the tribals. The proportion of tribals displaced by Medium & Major projects could be as much as 40%.

The 12th Plan document (Volume I) also notes that there are "definite limits" to the role that large dams can play in bringing about additional large water storage. It also expresses concerns over the ecological consequences of building more dams, including seismic effects, climate change effects of additional large water storages, the trend of increasingly building dams in flatter topographies which mean more submergence and so on.

Of the addition to irrigated area of 25.7 million hectares (mha) between 1970 and 1990, groundwater accounted for over 85%. The area under canal irrigation has ceased to expand significantly since the mid-1980s, while the area irrigated by tanks has actually declined. The annual extraction of groundwater in India is over 200 billion cubic metres, which is by far the highest in the world.[72] Table 5.36 shows how the share of surface water sources in net irrigated area has gone down dramatically and the share of groundwater sources has gone up.

Groundwater availability is dependent on the water storage and transmission characteristics of underlying geological strata. About 65% of India (comprising mainly the continental shield) is underlain by formations

Table 5.36 Long Period Averages of Net Area Irrigated by Different Sources, 1950–2010 (Percentage)

Years	*Canals*	*Tanks*	*Total surface water*	*Tubewells*	*Other wells*	*Total groundwater*	*Others (incl both sw/gw)*	*NIA*
1950–51 to 1964–65	42	18	60	3	29	32	8	100
1965–66 to 1979–80	40	12	52	16	24	40	8	100
1980–81 to 1994–95	37	7	44	29	21	50	6	100
1995–96 to 2000–01	28	4	32	36	24	60	8	100
2000–01 to 2004–05	26	4	30	37	25	62	8	100
2005–06 to 2009–10	27	3	30	37	24	61	10	100

Source: Indian Agricultural Statistics, various issues.

usually referred to as "hard rocks". "Hard rock" is a generic term applied to consolidated formations with aquifers of low primary intergranular porosity (e.g. granites and basalts).[73] Groundwater resource in hard rocks is characterized by limited productivity of individual wells, unpredictable variations in productivity of wells over relatively short distances and poor water quality in some areas.[74] In contrast to alluvial areas (characterized mainly by relatively more pervious geological strata), the groundwater flow regimes in hard rock areas are extremely complex. Deep-seated aquifers often have good initial yields, but a tubewell drilled here may be tapping groundwater accumulated over several hundreds of years. Once groundwater has been extracted from a deeper aquifer, its replenishment depends upon the inflow from the shallow system. The path this water has to traverse is characterized by relatively unfavourable media, which greatly slows down the rate of groundwater recharge. This poses a severe limit to expansion of tubewell technology to areas underlain by these strata.

Irrigation Infrastructure in Tribal India

While the agricultural growth story points to a long neglect of the rainfed areas and a slow revival based on public investment in precisely these areas, aggregate pictures are not enough to shed light on the underlying inequities in provisioning of irrigation, particularly with respect to STs.

Table 5.37 provides aggregate statistics on irrigated area as a share of the total sown area for different social groups for 2005–06 and 2010–11.

Table 5.37 Share of Irrigated Area to Net Sown Area Across Social Groups, 2005–06 and 2010–11

Major size classes of holdings	*All social categories*		*SCs*		*STs*	
	Percentage of irrigated area to net area sown		*Percentage of irrigated area to net area sown*		*Percentage of irrigated area to net area sown*	
	2005–06	*2010–11*	*2005–06*	*2010–11*	*2005–06*	*2010–11*
Marginal	57.53	52.25	58.84	55.72	23.13	25.34
Small	46.9	44.61	44.19	44.4	20.15	24.17
Semi-medium	44.78	44.39	38.99	40.33	19.59	23.64
Medium	44.64	45.06	34.37	36.41	19.93	22.7
Large	36.67	37.57	18.15	22.85	17.15	18.39
All size classes	46.84	45.7	45.23	45.35	20.18	23.5

Source: *All India Report on Agricultural Census 2010–11*, Agricultural Census Division, Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi: 2015.

Note: Figures for 2005–06 exclude Bihar, Jharkhand and Maharashtra.

Table 5.38 Share of Different Sources of Irrigation Across Social Groups in NIA

Sources of irrigation	*All social categories*		*SCs*		*STs*	
	2005–06	*2010–11*	*2005–06*	*2010–11*	*2005–06*	*2010–11*
	NIA %	*NIA %*	*NIA %*	*NIA %*	*NIA %*	*NIA %*
Canals	27.35	26.19	28.92	26.45	28.84	23.77
Tanks	3.86	3.48	5.92	4.07	5.41	5.35
Wells	16.84	18.46	13.74	16.48	25.98	23.31
Tubewells	43.57	45.17	46.43	46.38	19.48	26.8
Other sources	8.38	6.71	7.59	6.61	20.29	20.78
	100	100	100	100	100	100

Source: *All India Report on Agricultural Census 2010–11*, Agricultural Census Division, Ministry of Agriculture and Farmers Welfare, Government of India, New Delhi: 2015.

Note: Figures for 2005–06 exclude Bihar, Jharkhand and Maharashtra.

We may observe from Table 5.37 that ratios for tribal farmers across all size classes and both years are considerably lower than those of all groups put together and that of the SCs. The higher ratios for the SC group need to be interpreted with some caution though, since net sown area for the group is only 8.6% of the total NSA for all groups.

In terms of sources of irrigation, we find ST farmers mirroring the same trends of falling share of surface water and rising trend of groundwater sources. However, there is one major difference – the smaller share of tubewell irrigation in sources of irrigation (see Table 5.38).

Data from the Socio-Economic Caste Census of the government shed further light on the extent of deprivation of tribal farmers in terms of irrigation (Table 5.39).

Table 5.40 presents the same data sorted in ascending order by the criterion of 2.5 acres or more of irrigated land and at least one irrigation equipment. It excludes states for which data are not available or where tribals are in a negligible number. Predictably, there is a very small share of excluded households when a more demanding criterion of owning 7.5 acres or more land with at least one irrigation equipment. However, the exclusions are very small. The obverse of this is that *inclusions* in the SECC deprivation list on account of irrigation will be very high amongst tribals.

Another way of looking at the SECC data is to see the share of tribals in total excluded as far as irrigation indices of deprivation are concerned. However, given that the tribals are a small share of the total population, this indicator will need to be "normalized" for population. Table 5.41 presents state-wise calculations showing the ratio between share of STs in total excluded and the share of STs in population of the state. The lower the ratio, the higher is the deprivation of the STs relative to other social groups.

Table 5.39 Share of ST Households Excluded From SECC on Irrigation Criteria

Zone	*Code with state/ UT Name*	*Households owning 2.5 acres or more irrigated land with at least one irrigation equipment*	*Household owning 5 acres or more land irrigated for two or more crop seasons*	*Households owning 7.5 acres or more land with at least one irrigation equipment*
East total		0.42	0.57	0.24
East	19 – West Bengal	0.23	0.26	0.08
East	20 – Jharkhand	0.96	1.19	0.53
East	21 – Odisha	0.09	0.21	0.08
West total		3.06	1.73	1.51
West	08 – Rajasthan	5.59	3.04	2.63
West	24 – Gujarat	2.15	1.27	1.04
West	27 – Maharashtra	1.35	0.84	0.79
South total		2.24	1.87	1.22
South	28 – Andhra Pradesh	0.85	1.16	0.37
South	28 – Telangana	3.20	2.54	1.61
Central total		2.02	1.13	1.12
Central	22 – Chhattisgarh	0.58	0.36	0.49
Central	23 – Madhya Pradesh	2.76	1.46	1.43
South	28 – Andhra Pradesh	0.85	1.16	0.37

Source: Socio-Economic Caste Census (SECC), 2011.

Table 5.40 Share of ST Households Excluded From SECC on Irrigation Criteria (Sorted)

Code with state/ UT name	*Households owning 2.5 acres or more irrigated land with at least one irrigation equipment*	*Household owning 5 acres or more land irrigated for two or more crop seasons*	*Households owning 7.5 acres or more land with at least one irrigation equipment*
21 – Odisha	0.09	0.21	0.08
19 – West Bengal	0.23	0.26	0.08
22 – Chhattisgarh	0.58	0.36	0.49
28 – Andhra Pradesh	0.85	1.16	0.37
20 – Jharkhand	0.96	1.19	0.53
27 – Maharashtra	1.35	0.84	0.79
24 – Gujarat	2.15	1.27	1.04
23 – Madhya Pradesh	2.76	1.46	1.43
28 – Telangana	3.2	2.54	1.61

Source: Calculated from SECC (2011) data.

Table 5.41 Ratio of Share of STs in All Excluded Households on Irrigation Criteria and Share of STs in Total Housholds Sorted by Order of Share of Households Owning 2.5 Acres or More Irrigated Land

Code with state/ UT Name	*Households owning 2.5 acres or more irrigated land with at least one irrigation equipment*	*Household owning 5 acres or more land irrigated for two or more crop seasons*	*Households owning 7.5 acres or more land with at least one irrigation equipment*
27 – Maharashtra	0.22	0.22	0.21
24 – Gujarat	0.28	0.22	0.20
19 – West Bengal	0.28	0.43	0.29
23 – Madhya Pradesh	0.29	0.24	0.26
22 – Chhattisgarh	0.37	0.40	0.44
21 – Odisha	0.37	0.47	0.43
28 – Andhra Pradesh	0.53	0.96	0.43
08 – Rajasthan	0.62	0.46	0.53
28 – Telangana	0.92	1.15	0.90
20 – Jharkhand	0.93	1.27	0.95

Source: calculated from the SECC 2011 data.

We see that in all states the ratio is less than one (except two observations in the second column), indicating that the share of tribals in exclusion according to the irrigation criteria is less than their share in population.

An inference that may be drawn from these calculations is that while there is an improvement in overall agricultural growth rates from the 11th Plan onwards, this growth momentum has not necessarily been transferred into tribal areas. The revival of growth rates, though happening on account of rainfed states, does not probably reflect an upward trend in agriculture in the tribal areas, insofar as expansion of irrigation is necessary for agricultural growth. This points to an inequality within the rainfed regions which needs further examination.

Potential of Dryland Agriculture

It is now well known that over the last 60 years, the share of agriculture in national income has fallen dramatically (from 54% in 1931 to 18% in 2008), without a corresponding decline in its share in the workforce (which was 71% in 1931 and 56% in 2008). These trends are summarized in Table 5.42. Thus, while employment has not risen fast enough in the non-agricultural sectors to draw labour away from agriculture, this labour has increasingly been employed in very low productivity work in agriculture. This indicates that the labour productivity in agriculture has fallen relative to the average labour productivity in the economy as a whole (Bhaduri, 1993).

Table 5.42 Share of Agriculture in National Income and Workforce, 1931–2008

Year	*Share of agriculture in*	
	GDP	*Workforce*
1931	54	71
1951	52	73
1961	49	70
1971	43	67
1981	36	67
1991	32	65
2001	22	63
2008	18	56

Source: MoSPI (2010)

The continuing inter-sectoral differences in labour productivity, together with the fact that agriculture and related activities are still the major source of livelihoods, are among the abiding causes of poverty in India. The flip side of this phenomenon suggests that if we want to raise overall output and employment in the economy, the most effective means would be to raise the productivity of agriculture. Since national per capita income can be expressed as a weighted average of sectoral productivities, it follows as an arithmetical identity that a rise in productivity in agriculture would lead to a greater increase in national output than the same increment in the productivity of the other sectors. In developing economies with a predominant agricultural sector growth in agricultural productivity and employment is attainable through careful management of natural resources including water. This is also the precondition for greater labour absorption in agriculture through greater crop diversification and increased cropping intensity[75] (Bhaduri, 2006).

In fact, by disaggregating the agricultural sector into a Green Revolution sector and a dryland sector, we could extend Bhaduri's analysis and argue that the maximum returns to a unit rise in productivity (across sectors) are obtainable from the dryland agricultural sector in India. This is because the drylands sector is characterized by the lowest levels of productivity, even while employing nearly 50% of the labour force in Indian agriculture. Thus, both the scope for raising productivity and its potential aggregate impact are the highest in this sector. Since the poorest sections of Indian society live here, a rise in productivity in this sector would have an immediate impact on poverty alleviation, without having to await the rather doubtful and tenuous "trickle-down" from the core to the periphery. It would also have a positive impact on the pattern of inter-regional inequality by benefitting the most backward areas.

Finally, if we concentrate our investment in these areas on labour-intensive works which raise productivity through the process of environmental regeneration, we could go a long way towards making the overall growth path of the Indian economy both employment-oriented and sustainable in the long

run. Data from the Rural Labour Enquiry (Labour Bureau, 2004) reveal that the proportion of the landed among agricultural labour households is very high. The share is around 50% in Rajasthan and Madhya Pradesh, 60% in Orissa and Uttar Pradesh and over 70% in Chhattisgarh and Jharkhand.

If we focus on tribals, the proportion shoots up to as high as 76–87% in Chhattisgarh, Jharkhand and Rajasthan.[76] This is a reflection of the process of immiseration of the peasantry that has been analytically captured by Krishnaji (1990).[77] As Krishnaji argues, what has happened in post-colonial India is pauperization of the peasantry, without a corresponding increase in dispossession and landlessness. The NSS 61st Round shows that in 2004–05, as many as 76% of the rural households in the country were marginal farmers (owning less than 1 hectare of land) and another 13% were small farmers (with landholding size between 1 and 2 hectares) (NSSO, 2007). Thus, small and marginal farmers accounted for nearly 89% of the landholdings. An increasing number of these small and marginal landowners, operating low-productivity holdings are being forced to enter the labour market. If priority is given to raising productivity in the fields of these landed labourers (occupying an estimated 8 million hectares), it would be a major contribution towards direct poverty alleviation in India.

Watershed Development

As is clear from the discussion on India's agriculture, limits to further expansion of surface and groundwater irrigation through big dams and tubewells are being reached rapidly. This makes the urgency of a different strategy for India's drylands even greater. Such a strategy needs to recognize the location-specific characteristics of different parts of India. It also needs to be sensitive to the limits set by the ecosystem. This, we believe, is the broad strategy of watershed development, representing a win-win solution. For the life of irrigation sources themselves, whether dams (big, medium or small) or wells/tubewells, depends crucially on the treatment of their catchments to reduce rates of siltation and on groundwater recharge works, both key ingredients of watershed development. By reducing siltation rates through control of the volume and velocity of surface water run-off, watershed programmes can make a big contribution to enhancing storage capacities of big dam reservoirs. They can be similarly effective in restoring fallen water tables in areas that have seen massive groundwater overexploitation.

A review of the performance of watershed projects during the last 20 years reveals their potential for drought-proofing, agricultural growth, environment protection and employment generation. Kerr and Chung (2001)[78] provide an excellent summary of the operational indicators of impact of watershed programmes. It is true that there are not too many studies covering all these aspects. There is clear lack of rigorous methodology in many studies. The quality of the data is also highly variable across projects. However, several studies and evaluations (Table 5.43) do provide an indication of the potential of the watershed programme.

Table 5.43 Summary of Evaluations of Watershed Programmes in India

Authors	*Watersheds/areas studied*	*Key findings*
Sharda, Samra and Dogra, 2005[79]	6 IWDP watersheds in various states	Surface run-off reduced by 58%. Soil losses reduced by 52%. Crop productivity index rose by 12–45%.
Amita Shah, 2000[80]	4 watersheds in Gujarat	• Irrigated area doubled. • Total net return from all crops increased by 63%. • 87% households drinking water availability increased. • 71% of the landless reported better availability of employment opportunities in the post-project period. • Value of stream of benefits over a 15-year period ₹1.05 million from an initial investment of ₹0.26 million. • Overall benefit–cost ratio (BCR) was 4.07.
State Water Conservation Mission, AP[81]	2,000 watersheds in Andhra Pradesh	Water levels rose in 90% watersheds, despite fall in rain by 28%. 170,000 hectares of additional area brought under cultivation. Out-migration of labour declined by 10 to 40%. Availability of drinking water improved.
TARU, 2001[82]	Selected Rajiv Gandhi Mission MP Watersheds	• The cropped area showed an increase in 46 out of 58 villages. • Improvement in groundwater levels in all project villages. • Increase in irrigated area in 38 out of 58 villages. • Equal wages for men and women.
WASSAN, 2004[83]	5 watersheds in AP	• The overall BCR varied between 1.10 and 3.78. • Investment payback period of a watershed project is 2–3 years.
Chaturvedi, 2005[84]	8 watersheds in Gujarat	• High BCR figures in the range of 4.06–15.72. • Increase in cropped area and improvements in crop productivity.

(*Continued*)

Table 5.43 (Continued)

Authors	*Watersheds/areas studied*	*Key findings*
Crispino Lobo, 1996[85]	Indo-German programme, Maharashtra	An average rise of nearly 300% in the irrigated area. 50% rise in cropped area.
TERI, 2004[86]	Watershed programmes in 16 states and in 221 districts	Overall improvement in land use in majority of states. Increase in net sown and gross cropped area. Expansion in irrigated area, greater fuelwood and fodder availability. Higher incomes and employment opportunities.
ICRISAT, 2005[87]	Meta-analysis based on 311 case studies of watersheds from different states	Soil loss (51 studies) reduced by 0.82 tonnes/ha./year. Rate of run-off (36 studies) reduced by 13%. Irrigated area (97 studies) increased by 34%. Cropping intensity (115 studies) went up by 64%. Additional employment (39 studies) of 182 person-days/ha./year. Additional employment up to 900 person-days/ha./year. BCR of 2.14; 15% of the watersheds had BCR >3. Mean IRR of 22%, maximum IRR of 94%.

These studies provide an overwhelming justification for investments in the watershed programme in the fragile and uncertain environment of India's drylands. As the 12th Plan document notes, MGNREGA needs to be planned so that such watershed interventions can be planned and executed on a large scale across the drylands of India, which are also tribal areas.[88]

However, for such possibilities to be fully articulated, the bottom-up architecture of MGNREGA would have to become a reality, the key to which in turn is a deepening of democratic decentralization. It is to an understanding of these issues that we now turn.

Conclusions

As we have seen, the progress in tribal areas in provisioning of water and sanitation have quite some distance to go. The data cited in this chapter bring out inequities in social sector provisioning between areas of tribal concentration and other areas. In particular, social infrastructure *for* tribals *in* tribal-dominated areas is a cause for concern.

PMGSY has been relatively more successful in their objectives, despite its shortcomings. An important conclusion from this is that government interventions in the social infrastructure domain have greater chances of success when what is to be provisioned involves a one-time capital construction activity like roads. When it comes to more detailed and decentralized interventions, which require community mobilization and strengthening of local institutions, government interventions tend to falter. TSC and RGNDWM are examples which require local leadership and ownership but these do not seem to be happening. Even in the case of electricity, the movement from electricity generation to decentralized distribution opens up several questions about the true nature of subsidiarity.

An analysis of different types of development interventions and the state's role[89] concludes that state interventions fail when they are both transaction-intensive *and* discretionary since the bureaucracy is not equipped to deal with such situations. This would explain in large part the failure to sustainably implement with quality the more important part of provisioning of sanitation, drinking water and electricity – viz., those parts which require social engineering. Thus, design and maintenance of drinking water sources, flexibility in terms of design of toilets to cater to demands from beneficiaries, maintenance of electricity, management of water in irrigation commands, organizing beneficiaries in order that they takeover the leadership of development interventions are all areas where government failure is large. Particularly because there is a tendency to go for a "one size fits all" type of approach, to learn from "developed nations" and to attempt to replicate their experiences somewhat unimaginatively. On the other hand, road construction is eminently within the state's reach because of its non-discretionary and non-transaction-intensive nature.

This brings us to another central question which is related to rural, tribal areas and has more general significance beyond rural infrastructure. That is the question of governance capacities and strengthening of PRIs. As a first step, undoing this will involve provisioning of human resources at the grassroots. Studies have noted in contexts such as MGNREGA (see Ambasta et al., 2008, *op.cit*), how shortage of human resources at the cutting edge of delivery hampers progress in several well-intentioned interventions. In the case of drinking water and electricity, this is brought about by the fact that the personnel required for maintenance are not available at the grassroots level. Nor is training taking place for creation of required human capacities. In the case of the TSC, for example, human resources are required to create the necessary social capital in favour of toilets and to generate robust community monitoring methods. Without adequate functionaries, decentralization and effective community control will not happen. It might be argued that since GPs do not have the requisite capacity to manage, devolution should not be done until capacities are built. However, we must remember that one cannot wait for the other. Effective devolution must take place hand in hand with capacity building so that PRIs visualize a stake for themselves in building their capacities. Given that the 73rd Constitutional Amendment

envisages local self-government particularly in tribal societies, building of such capacities and genuine devolution must be given top priority.

In this context, it is pertinent to point out that genuine devolution has still not happened. So the possibilities of local communities exercising their leadership over the development process is still a distant dream. The states dragging their feet must be made to comply. Contradictory as this may sound, genuine decentralization may also require some level of centralized oversight. Genuine rural, tribal development must be built on the twin pillars of subsidiarity and empowerment in order to ensure universal coverage with quality. Finally, as interventions such as MGNREGA and NRLM are sought to be intensified with special focus on tribal areas, it might be worthwhile to consider similar intensification for the most backward blocks for electrification, drinking water and sanitaton as well.

The other issue is related confinement to pockets of concentration of tribal societies. This has a bearing on Schedule V areas in particular. Our analysis strengthens the argument that in these areas, there is need for greater autonomy and devolution of power to tribal communities. However, in Schedule VI areas where the "enclavement" issue is not so intense, the results have not been very positive either. This does not mean that greater autonomy does not yield positive results, but that autonomy needs to be further strengthened in order to make it more vibrant.

A factor going against tribal society is the fact that tribals are scattered across a vast geography and are a heterogeneous lot, which has meant that a pan-Indian consolidation and mobilization has become difficult (as compared to Dalits for example). This has meant that they lack a cohesive voice in the system which can articulate their interests and ensure compliance on the part of powers that be. Mainstream political parties have not really made a difference to this, catering as they are to several different interests at the same time. It is therefore perhaps necessary for greater civil society effort or an altogether alternative political mobilization which brings the tribal voice to the forefront.

Box 1

When Samaj Pragati Sahayog (SPS) began its work in the early 1990s in a remote tribal area of Bagli Tehsil, Dewas district of Madhya Pradesh, it noticed that the government had installed several new handpumps even in remote areas. But the absence of an efficient system for **repair and maintenance** meant that most of these handpumps remain unused. In a benchmark survey in 1993, it found that more than 70% of the handpumps were in disrepair and a majority of them were in need of frequent repairs. Although the Gram Panchayat was

responsible for repair and maintenance of handpumps, they had no human resources as the mechanics were placed with the line departments. The government mechanics were indifferent to the problems of the people, to say the least. There were in any case only three mechanics for the entire tract of 90 tribal villages. **When a need as fundamental and critical as drinking water becomes a victim of bureaucratic indifference and unaccountability, it becomes essential to empower the people so that they can take care of their own problems.**

In 1993, SPS launched a people's movement in the 90 villages of its area. In the first phase of this movement, four young tribal men were sent for a handpump repair and maintenance workshop. In January 1994, the government handed over the responsibility for repair and maintenance of all 60 handpumps in 14 villages of the area to this four-member team on a trial basis. The team provided prompt and efficient service, taking particular care of those villages whose drinking water situation was precarious. Every complaint was attended to within 24 hours, even if it meant traversing 10–15 kilometres through forests, braving the scorching heat of the summer and crossing streams and rivulets in full flow during the monsoon. In this way, these young tribal men set a rare example of dedication and responsiveness. Thus, the administration proposed that SPS extend this people-centred system to all 32 panchayats (90 villages) of the area.

For this purpose, SPS organized a 45-day handpump repair and maintenance training camp in village Neemkheda in December 1994–January 1995. As many as 46 tribal people, including 11 women, from the area participated in this camp. The special feature of this camp was that training was imparted not by specialists from outside, but by the four young tribal men who had looked after this work for the past one year. **It was perhaps the first time in the country that training in such technical work was being imparted by tribal trainers to tribal trainees.**

After the camp was over, these newly trained men and women tookover charge of repair and maintenance of handpumps in the area. They began work in February 1995. After examining the number and locational dispersion and concentration of handpumps, SPS demarcated 14 handpump circles in the area. Each circle comprised 2–3 panchayats. All 46 trained mechanics were distributed across these circles for the purpose of handpump repair and maintenance. Essential spares and tools were placed at each circle headquarters.

In the summer of 1995, when all drinking water sources dried up and the water level in handpumps dropped, the new people's mechanics worked at repairing handpumps with tremendous zeal and dedication. About 20 handpumps, which had languished in neglect and disrepair for 1–5 years were repaired by them. As many as 30 handpumps of the

area which used to become unoperational every summer due to drop in the water level were repaired in that year by adding more GI pipes. In ten handpumps, the entire line, that is GI pipes, inner rods, cylinders etc. were replaced and the handpumps were restored to working order. In all, in the summer season of 1995, a total of 1,250 feet of GI pipes were added to the handpumps of the area. The entire initiative provided relief to the people from the grave drinking water crisis that they normally had to face. The greatest achievement of this effort was that while every year in the monsoon about 20–25 infant deaths were reported because of a lack of a safe drinking water source, according to the block health officer, in 1995, not a single such death occurred in the area. What is more, a significant reduction was observed in complaints of stomach disorders, loose motions and vomiting.

Notes

1 The comments received from P.S. Vijayshankar and Sanchita Bakshi on an earlier version of this chapter are gratefully acknowledged.
2 Census of India (2001).
3 Sundaram, K. and Suresh D. Tendulkar (2003): NSSO (2007) See also Planning Commission (2008) Ch 4.
4 See Bakshi, Sanchita, Arunish Chawla and Mihir Shah (2015).
5 Planning Commission (2005).
6 Shankar, PS Vijay and Mihir Shah (2009).
7 See for instance Datt G and M Ravaillion (2002).
8 Bourguinon, Francois (2004).
9 Stiglitz, Joseph (2015).
10 See also Rajaraman, Indira (2005).
11 Shenggen Fan, Peter Hazell and Sukhadeo Thorat (1999).
12 The share is around 50% in Rajasthan and Madhya Pradesh, 60% in Orissa and Uttar Pradesh and over 70% in Chhattisgarh and Jharkhand. And if we focus on Adivasis, the proportion shoots up to as high as 76–87% in Chhattisgarh, Jharkhand and Rajasthan. See Labour Bureau (2004).
13 NSSO (2007), *op. cit.*
14 Chandramouli, R (2013).
15 Chandramouli, R (2013), *ibid.*
16 See Shah, (1998).
17 Bakshi et al (2015), *op. cit.*
18 Dutta.
19 We have deliberately restricted ourselves to data upto 2016–17 since the year 2017–18 was still ongoing at the time of writing this chapter.
20 All statistical analysis in this chapter were carried out in the R statistical platform using the fronted RKWard.
21 While this may seem contradictory to the findings in Table 5.3, wherein we find that a majority of the districts in Madhya Pradesh are in the high tribal population share and high unconnected habitation share, a closer look reveals that the two findings can go hand in hand. Within a certain category of tribal population, we could have a large share of districts with high share of unconnected

habitations, but the correlation could well move inversely between the two variables.

22 If we take a cut-off level of significance of 5% instead of 1% (as the dotted line in Figure 5.3 shows), we find that Jharkhand and Maharashtra join the group of states where there is a significant positive correlation, and Rajasthan too becomes significantly negative, along with Madhya Pradesh.
23 Planning Commission (2005).
24 Programme Evaluation Organization (2010).
25 Bell, Clive (2012).
26 Asher, Sam and Paul Novosad (2013).
27 Bell, Clive and Susanne van Dillen (2012).
28 See also Planning Commission (2012).
29 Althaf, S (2010).
30 World Bank (2014).
31 Saxena, NC (2016).
32 Due to the involvement of bilateral international organizations.
33 Note that an allocation of resources from the top is also not a guarantee for the same being spent, unless capacities exist at the grassroots to make use of the funds.
34 Creating the basis for such successes in programmes like MGNREGA is a challenge that the Indian state will, willy-nilly have to face up to and solve. Support for MGNREGA is not just "ideologically driven" as Saxena claims but is rooted in the hard reality of the state, particularly in the tribal areas of central India, having more or less abdicated its responsibilities of providing governance, genuine representative democray and development.
35 It is important to keep this distinction alive in today's context when there is a vocal segment in public discourse which cries foul against such spending as "sops", meant only to drain the treasury or worse still to keep people in poverty (a.k.a "povertarianism" – though what exactly povertarianism means and what povertarians do is best known to those who use the term; we are simply providing here a counter to what we understand of the argument) without adding to growth. Without a broad-based, robust and functioning public education system, for example, it would be difficult to imagine provisioning of skilled human resources needed to carry out different tasks in a growing economy.
36 Planning Commission (2012), *op. cit.*
37 See for instance Planning Commission (2012), and the World Bank (2006).
38 CWC (2010).
39 See also Ministry of Drinking Water and Sanitation (2011) for a discussion of these points.
40 NSSO (2012).
41 See Ghosh, Jayati (2018).
42 Calculated through a simple OLS estimate of logarithmic values of the habitations against time: that is $X_1=X_0(1+r)^t$ so that (x=a+bt) where b is the log of the estimate of the r.o.g and the exponent of b minus 1 gives the rate of growth (decline).
43 Planning Commission (2012), *op. cit.*
44 PEO (2010).
45 Water and Sanitation Program (2011).
46 SIWI (2005).
47 Comptroller and Auditor General of India (2015). The report notes that in 53 districts of eight states where the toilets were checked, 33% were found to be defunct. Also, only 52.15% of construction target of IHHLs could be met.
48 National Sample Survey Office (2014). Note that the survey reports on access to toilets and not to actual use.

49 National Sample Survey Office (2016).
50 "subject to a maximum of Rs. 7 lakh for a GP having up to 150 households, Rs.12 lakhs upto 300 households, Rs.15 lakhs upto 500 households and Rs.20 lakhs for more than 500 households" (SBM guidelines, *ibid.*).
51 See WaterAid (2017).
52 The SBM portal (http://sbm.gov.in/sbmreport/Home.aspx) gives data on IHHL for STs across all states, as well as for STs in ST-dominated areas of each state. We have taken the former category for our calculations.
53 A simple trend using an underlying linear regression model was found to be a better fit than other models predicting rates of growth.
54 Indeed, an important contribution of the work of Coffey, Spears et al. is to bring to the foreground the important cultural causes which act as barriers to toilet adoption and use. For instance, they cite evidence to the effect that open defecation from Bangladesh, India and Nepal could almost entirely be eliminated if the Hindu population had the same sanitation behaviour as non-Hindus. Further, that Muslims are 25% less likely to defecate in the open than Hindus within India. This despite the fact that on an average a Hindu family was better off than non-Hindu families, reflected in higher per capita consumption levels, higher likelihood of having a literate member and a higher likelihood of having piped water supply.
55 Refusal to eat school mid-day meals served or cooked by SC cooks and assistants is also a part of tribal areas as much as it is of non-tribal ones.
56 Randomly refers to the selection of households for the study being done randomly in some states rather than in other states where households with toilets were chosen.
57 See CEEW (2015).
58 This may be in part explained by the poorer performance of states like Bihar and Uttar Pradesh which have tended to pull the national average down.
59 Sreekumar and Dixit (2011).
60 See also Kalra, Prem K Rajiv Shekhar and Vinod K Shrivastava (2007): In Kalra, Prem and Anupam Rastogi (eds.).
61 PEO (2014).
62 Greenpeace (2011).
63 The Bhuria Committee Report makes the recommendation that tribal areas in Schedule V areas should also be reorganized as envisaged for Schedule VI areas.
64 Chaudhuri and Gupta (2009).
65 If we extend this analysis to the northeastern states where the demographics favour tribals and where indeed, tribals can legitimately be expected to wield a higher level of autonomy and self rule, we see that the data do not suggest that these areas are necessarily better off. While the northeastern region has its own specificities (one critical feature of which is the rather large number of diverse tribes within the same space), it is nevertheless a pointer to the fact that tribal empowerment cannot be looked at as a simple exercise in demographic reorganization or even political and administrative reorganization. Such reorganization has to move hand in hand with the creation of capacities.
66 Planning Commission (2013).
67 This is aligned with the global trend (FAO (2003)) since the global rate of expansion of irrigated area, which was 2.17% between 1961–63 and 1971–73, steadily came down in the subsequent decades, reaching 1.23% between 1990–93 and 1997–99. Incremental irrigated area reached its maximum (4.01 mha/year) between 1971–73 and 1981–83, which came down to 3.19 mha/year between 1991–93 and 1997–99.
68 CWC (2002).

69 The Steering Committee on Irrigation for the 10th Plan categorically states that

> [G]iven the large number of projects taken on hand, the frequent changes in project scope, and the escalation of project costs due to a variety of reasons, there is little likelihood that the outlay in the budgets can ever match the total demand.

Planning Commission, 2002.
70 Vaidyanathan, A (1994).
71 ILO-ARTEP (1993).
72 Shah, Tushaar (2009).
73 Groundwater Estimation Committee (1994): *Groundwater Resource Estimation Methodology – 1994*, Report of the Groundwater Estimation Committee, Ministry of Water Resources, Government of India.
74 Narasimhan, TN (1990).
75 This path of "extensive growth" has been advocated also by Raj, KN (1984): and Ishikawa, S (1967).
76 Shah, Mihir (2009).
77 Krishnaji, N (1990).
78 Kerr, John and Kimberly Chung (2001).
79 Sharda, VN, JS Samra and Pradeep Dogra (2005).
80 Shah, Amita (2000).
81 State Water Conservation Mission, Andhra Pradesh.
82 TARU (2001).
83 Reddy, CB and A Ravindra (2004).
84 Chaturvedi, V (2005).
85 Lobo, C (1996).
86 TERI (2004).
87 Joshi, PK, AK Jha, SP Wani, Laxmi Joshi and RL Shiyani (2005).
88 See also National Consortium on MGNREGA (2009) and National Consortium on MGNREGA (2011) for several examples of how this approach has yielded results on the ground.
89 Pritchett and Woodcock (2003).

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6 Land and Tribal Human Development

Part I

Pradip Prabhu

Introduction

This chapter explores the relationship between secure access to land and the human development of the tribal people as a people living a civilizational construct that is far removed from that of the general population. Long years of close living, extensive engagement in a dialectio-dialogical exchange with the tribal people across the nation and intensive analysis of their culture, ethos and life ways have compelled the author to recognize and admit the distinct difference between the two societal and civilizational constructs. Hence, we are compelled to examine the relationship of land and humans from the tribal civilizational construct to come to a realistic and fair assessment of secure access to land and the human development.

The first premise that most embedded academics working among the Adivasis/indigenous people recognize is that a large section of Adivasi communities are occupationally, technologically, socioculturally and ideologically developed though differently from the mainstream population. Adivasi communities are not backward and have developed ecological agriculture as also their culture in close proximity and interaction with nature, recognizing their investment in nature is to address need and not promote greed. One cannot but notice the relatively advanced civilization based on the respect for the "other", including nature. The Adivasis have developed a relatively egalitarian inclusive societal structure and some sustained matriarchal social systems. They have developed sophisticated mechanisms of internal solidarity that provide for the disadvantaged and dis-privileged; their practices of dispute resolution are not adversarial, but based on admission of error, restoring harmony rather apportioning guilt; their systems of thought and reasoning and regard for all life are systematically developed and communicated, their silence is not ignorance but deference and a quick assessment of the other before responding to the person. The basis of ethical standards is constraint on taking advantage of another's weakness and trust is based on respect for the other. Their relationship to nature recognizes that their individual and collective survival is intertwined with the survival of nature and hence conservation and not consumption is the centre of their interface with

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nature. Ecological living has many features that can easily be erroneously associated with poverty and backwardness. Accordingly, one can conclude like others who live close to nature for several generations; most Adivasis do not subscribe to consumption-based lifestyles but follow traditions that are largely conservationist as a part of conviviality with nature; like consuming forest food, which many link to poverty rather than intimate knowledge of nature's provision for nutritional security.

The second premise, related to the first, admits that the complex matrix of philosophical premises around human being and becoming, existential principles, ethical logics and standards, experienced ethos, living cultures, societal organization and functional relations of the Adivasi (indigenous) people are organic parts of an evolved Adivasi civilization, which is relatively uniform across most tribes with some local variations. From this, it is safest to conclude that the Adivasis are not backward, their backwardness is a construct of the elites seeking their integration in their mainstream on their terms and as the history of external and internal colonization over the past four centuries shows the construct of backwardness was a colonial construct.

From a civilizational perspective, one observes that the Adivasi people have evolved conservationist cultures and standards of human living in a continuous dialogical interface with their natural and social environment. Their civilizations were built around the recognition and respect for nature and humans as partners and not competitors in a collective survival space. This civilizational construct has persisted for centuries and retained to a greater degree in the "excluded areas of the North East" where the colonial imposition remained "token" presence following resistance, inaccessible terrain leading to categorization of the region as "excluded" areas for the purposes of the administration. Hence, the traditional tribal/indigenous lifeways were able to survive for centuries. In most other regions where the colonial administrations, whether British, French, Dutch of Portuguese, were able to consolidate themselves, their major thrust was the "privatization" of land, essential to individualism and capitalism. But the colonial systems remained relatively ineffective because of prolonged collective resistance, generally put down with a brutal repression and administrative alterations. Consequently, the colonial government segregated Adivasi areas, depending on ability of the colonial administration to quell revolts. The central Indian tracts, where quick military intervention was possible and administrative presence kept low, were declared partially excluded areas, while the hilly Adivasi tracts beyond the Brahmaputra River were excluded, hence traditional systems survived.

The tribal ecologico-social systems have come under serious threat post-Independence. The backward indigenous or Adivasi civilizations were subsumed into facilitating "building a modern nation" at the cost of their distinct societies, cultures and governance systems, as a necessary condition for extraction of the abundant mineral and natural resources in the

homelands, whether minerals, forests, water or land. Hence, we need to recognize the distinction between the premises of conservationist and consumptionist civilizations and explore the premises of human development of the Adivasis accordingly.

This third premise is the Adivasi world view or understanding of the "other". The Adivasi view is rarely adversarial and traditionally a visitor is seen as a "friend and welcomed to share what they have". This perspective is not only seen in India alone but in virtually all indigenous communities. This perspective is often misinterpreted as "simple", "feeble" and "unshrewd" people. Even after the continuous assault on their living cultures to tame the "wild-men" and "mainstream the uncivilized", most elements of their civilizational construct have survived, albeit as fragments.

The interplay of nature and spirit in their agricultural, cultural and philosophical traditions influenced their consciousness, culture, lifeways and agricultural practices of the tribal people. This construct was developed and elaborated at length by Prof. Vidhyarthi (Vidyarthi, 1963) through his intensive and extensive research into the lifeways of the Maler, an indigenous/Adivasi community. The Adivasis/indigenous people have a special relationship with land; for many, it is not only the source of their livelihood and sustenance but also the basis of their existence as a people. The right to occupy and use land collectively is inherent in the self-conception of indigenous people, and this right is generally vested not in the individual but in the local community, the tribe or the indigenous nation (UNDP, 2004). Such conditions prevailed because ownership of land was not commoditized prior to the colonial consolidation in India. Neither the erstwhile pre-colonial rulers; who rarely if ever interacted with the Adivasis, other than during a hunt, when the Adivasis were called upon to facilitate the success of the expedition, nor did the Adivasis consider land as a commodity that could be owned, bought, sold or exchanged with another as alienable private property.

The creation of a private property construct of land followed the commoditization of land as a means of production and a source of revenue for the state. Given a broad overview, one rightly holds that colonialism was the handmaiden of capitalism. Hence, the colonial powers sought to rapidly reduce land to a commodity in the marketplace. Central to this objective would be taking land out of the retrogressive hold of communities, fragmented by caste and class and confer on land the freedom to be owned, bought and sold by individuals as a means of accumulating wealth. In the areas controlled by a motley lot of rulers, the transformation of land from the foundation of well-being to an asset in the market was swift and sure. The difficulties emerged in the tribal areas where communities resisted incursion of the colonials into their homelands (*des*). The colonial administration was quick in recognizing that the strength of resistance of these communities came from their strong community bonds which were anchored in community ownership of land and collective management by the elders.

"Privatization" of ownership of land was hence key to fragmentation of communities and loss of internal community solidarity. Hence, the colonial rulers began by suppressing community ownership of land and converted the land into state property.

While alienation of revenue land among the tribals was acknowledged during colonial rule, the rights of tribals residing in the forest, without any legally valid documentary evidence, was historically never acknowledged. The loss of control over land, both revenue and forest, was the principal reason for continuous tribal rebellions from the late eighteenth to the twentieth century. These rebellions focused on and asserted the traditional inalienable rights of the Adivasi people on local resources, land and forests (Prabhu and Bulsara, 2014). Understanding the relationship of the Adivasi and land from its multiple many angles that defines their engagement with land is necessary as their understanding traverses political, historical, social, sacred, emotional and existential terrains. Land is referred to by Adivasis as their "des" (nation or homeland, see Longkumer and Jamir, 2014)), the site of belonging of the community as a people. Land is also viewed as territory within whose boundaries a tribe manages its affairs according to their customs and traditions and whose boundaries its members have defended with their lives right through colonial intrusion into their homelands. Land is also a deity, sacred as d*harthari*, *dharni pen* or other names, which recognize it as a life-sustaining deity. Land also speaks of history of clans, families and individuals, going back in time when the land was brought under cultivation. Previously, one did not find an Adivasi without land, now more than 45% are landless. Land defines social relations; a site of belonging, a locus of security and a basis of survival. Adivasis, other than exceptional cases, do not view land as market commodity, hence land alienation is a painful calamity that befalls them.

Almost all Adivasis without exception recognize that landlessness is the result of government moving their land to mining and industry and is a failure to protect Adivasi land. This view is the basis of the Supreme Court's view in the Samatha Case,

> [T]he purpose of the Fifth and Sixth Schedules to the Constitution is to prevent exploitation of truthful, inarticulate and innocent tribals and to empower them socially, educationally, economically and politically. . .. The Constitution intends that the land always should remain with the tribals.
>
> (Supreme Court of India, 2000)

This position is akin to International Conventions (ILO 107 and 169), which call on governments to "respect the special importance for the cultural and spiritual values of the people's relationship with lands or territories, or both as applicable, which they occupy or otherwise use, in particular the collective aspect of their relationship".

The debate emphasizes huge class and wealth disparities in Indian society, especially in rural areas and the worsening situation since the 1990s, fed by a total failure to implement either land reforms right from Independence or decentralized democracy in Scheduled Areas envisaged in PESA (Dandekar, 2013). Indeed, many feel the Adivasis pay the price for development and official estimates place the number of project displaced Adivasi people at 6 crores since Independence with not even a third properly resettled. Most of the displaced are now assetless rural poor, marginal farmers, quarry workers and migrant labour. Official statistics testify that Adivasis have been the worst off on all indicators of development, already at the bottom of the development pyramid, being deprived of their land that completely pauperizes them, forcing many to move and live in subhuman conditions in the metros. The last two decades have also seen unprecedented agrarian distress, with more than two lakh farmers committing suicide, as per the National Crime Records Bureau, unparalleled events in Indian history (Shah, 2015).

It is in this backdrop that we look at the palpable anger over forcible land acquisition. With 90% of coal and more than 50% of minerals, prospective dam sites and industrial enclaves mainly in Adivasi regions, tension over land loss grows, posing questions on our development strategy; the delicate fabric of Indian democracy is terribly frayed at the edges. This fairly detailed introduction raises two fundamental questions: where are the standards of Adivasi human development to be pegged; to conditions of the urban slums where many Adivasis eke out their survival at the margins and their youth slog as domestics or to the conditions in their homelands at Independence? The second is whether we can arrive at a pan-India picture or arrive at a mosaic of the impacts of secure access to "land" or the impact of the loss of this meaning giving survival resource on tribal human development.

The Adivasis are recognized for their high level of communitization[1] encapsulating in one term the process of empowering the village community and bringing it to the centre of welfare of its members by relying on high levels of open participatory democracy, strong systems of internal solidarity and self-management. These were the ground realities that sustained prolonged resistance of the tribal people to colonization of the area, from Thane to Jhabua, led by legendary Bhil leaders like Tantya Bhil, Bhagoi Bhangre, Khajya Naik and others (Prabhu, 2014). The tribal tracts of Gujarat and south Madhya Pradesh were the territories of resistance. Most of these territories have been inundated by dams and the people dispersed to live their lives as rootless Adivasis. The uprooting of the Adivasi begins from the loss of land, which forces him, and in most cases, the whole family to join the ranks of "footloose labour".[2] The displacement of Adivasis following exclusion from land triggers the process of "cascading alienation". At the end of the long list of exclusions comes the exclusion from his village, his community, his systems of internal solidarity, his possibility of freedom from the cycle of exclusion and threatening extinction. Since, in a system

of cumulative inequalities, privileges, property and power are combined in certain individuals, while the socially underprivileged are economically and politically deprived (Beteille, 1974).

It would not be an exaggeration to submit that in the post-Independence era, the Indian state has been the single largest agency responsible for alienation of tribal lands. The scale and extent of this land alienation would exceed the quantum of tribal land alienation that took place in the colonial times. It might be argued that this form of loss of land and other land-based resources does not come under the definition of land alienation or that the state has no interest in acquiring those lands except in public interest and therefore they are not under the ambit of a paper on land reforms.

In the past five decades, approximately 1,052 dams have been constructed in India. Of these, 123 are major projects and while medium-sized dams are around 929. An approximate rate of 40,000 persons have been displaced per major project according to very conservative estimates.[3] In that event, 123 major dams have displaced 49.2 lakh persons all over the country. Of this number, over 16 lakhs are tribals.[4] On a conservative figure of 5,000 displaced persons per medium-sized project, 929 medium-sized dams would have displaced a total of about 95.7 lakh persons. Clubbing together those displaced by small and minor projects would raise the number of displaced persons to about 100 lakhs. The total number displaced to date by dams and irrigation projects alone as per the current calculations would be around 150 lakhs. An expert in cost–benefit analysis of irrigation projects who has made extensive studies on displacement, however, finds this figure an underestimation and places the total displaced persons by all dams in the region of 2.16 crores (Chakraborthy, 1987). A very large part of the displaced are tribals because 60% of the large dams are located in central and western regions of the country where 82% of the tribals live. Displacement by the dams under construction or planned in different states of India is estimated to be in the region of 11.69 lakhs, of which 50.13% are tribals (Fernandes et al.). In some of the dams the quantum of tribal displacement is as high as 100%.

Looking further at approximate figures of displacement involved in building a strong and advanced India points to 17 lakhs displaced for mines, another ten lakhs displaced to build the canals for irrigation; displacement for establishing industries and industrial estates is around ten lakhs, in the name of the environment and for setting up sanctuaries, game parks, tiger reserves and bio-spheres close to six lakhs; largely tribals have to face involuntary displacement (ibid., p.80). There is no data available even to hazard a guess about displacement for defence, or the growth of cities, particularly industrial centres in backward tribal areas. Putting all the totals together, close to 100 lakh tribals have been displaced, many of them more than once and quite a few more than three times, for some project or the other in the five decades post-Independence. While tribals form only 8% of the overall population of the country, their proportion among those displaced at a very

conservative estimate is as high as 40% (Ministry of Home Affairs, 1985, pp. 18–19).

This chapter will present a state-wise status of the land situation in two parts, clubbing contiguous and similar states together to examine the core issue of the role of secure access to land in defining the human development situation of the Adivasi people. The first part of the chapter will club the states of Andhra Pradesh (unified), Maharashtra and Gujarat, which have had relatively common socio-eco-political and developmental trajectories. The second part will cover the states of Rajasthan, Madhya Pradesh, Chhattisgarh, Odisha and Jharkhand which share a number of commonalities, considerably shaped by erstwhile Gondwana and now facing major threats from ultra left-wing politics.

Land and Tribal Human Development in Andhra Pradesh (unified), Maharashtra and Gujarat

Andhra Pradesh, Maharashtra and Gujarat are three states where pressures on tribal land come from economically advanced groups desirous of having a piece of the homeland in the form of farm plots in the exotic forested tribal hinterlands or the industrial and entrepreneurial elite of the urban centers of Maharashtra, viewing tribal land as a place for their farmhouses and sites of tax-free incomes. Reflections on ground realities around land and the impacts on the tribal people and the challenges that they face in these four states facing *mutatis mutandis* similar alienation challenges from the industrialist, trader, hotelier combine will be synthesized in the conclusion to this section.

Land Scenario and Adivasis of Andhra Pradesh

Land has always been a sensitive political issue in the Scheduled Areas of Andhra Pradesh, now bifurcated with tribal areas being divided into two parts, in Telangana and Andhra Pradesh. Both Telangana and Andhra Pradesh inherit a rare legal dispensation circumscribing Adivasi land, referred to as Regulation 1 of 70.

Act 1 of 70

The Act popularly referred to as 1 of 1970 is the Land Transfer Regulation that was adopted by the legislature in 1970 and is not available to any other Adivasi in the country and is the basis for the Samatha judgement. The regulation was a concession made by the erstwhile Andhra Pradesh government in response to the long struggles of the tribal people. Under the Act, any transfer of land by an Adivasi to a non-Adivasi in fifth Schedule Areas is not legal. The term non-Adivasis includes the central and state governments. Transfer by a non-Adivasi can only be made in favour of another Adivasi

or a cooperative society composed solely of Adivasi members. The Act was only prospective in nature and did not nullify transfers of lands before the passage of the Act ensuring the emergence of big landlords over a period. To compound matters, the survey and settlement period, that is 1970–76 in Agency areas most of Adivasi land was surveyed in the name of non-tribals, who managed to get settlement pattas by paying a pittance to the surveyors.

Notwithstanding the provisions of the Land Transfer Regulation popularly known as 1/70, which raised hopes that the corpus of tribal land would be protected, the betrayal of the goals of 1/70 by the revenue functionaries ensured that most of the land belonging to tribals was surveyed in the name of non-tribals, who managed to get settlement pattas over the land of tribals by paying bribes during the survey and settlement period, that is 1970–1976 in Agency areas. In the process, big landlords emerged in these areas using or abusing the administrative and legal measures meant for the Adivasis, as the case may be, while the real Adivasis (PVTG) were alienated from the development that 1/70 was heralded to bring. Appropriation by landlords of land given to tribals under inalienable title got legitimacy through subsequent state processes of land claims during survey and settlement. Large tracts of land in scheduled areas remain with predominantly elite sections. The alien system of land tenure has had far-reaching effects on the dignity of the Adivasi people and their access to justice (Rao Trinadha, 2014).

The hilly and forest regions of erstwhile northern Telangana are inhabited by the Adivasis. These areas hold major deposits of coal, bauxite and limestone. Telangana is second only to Jharkhand, while standing first in terms of value of coal production. The state is also the biggest in minor mineral production. Over 50 lakhs Adivasis live in the region bordering the central tribal region of Bastar. The main Adivasi belt of Telangana could geographically, geologically and ethnologically be said in many ways to belong to the central Adivasi areas than any southern state.

In Telangana, 1,482 mines are spread over 206,250 hectares as of 2006, but limestone mining is spread over 45%, and the extent of minor minerals mining is unknown and unregulated. Mining has more than doubled since the 1990s, notwithstanding a relatively stricter regulatory paradigm post the SC judgement in 1997 in the Samatha case, which prohibits transfer of tribal lands to non-tribals, including private mining companies (Andhra Pradesh High Court, 1997). The issue is that vast tracts of Adivasi land are settled as government land notwithstanding forest dwellers living and depending on this land for generations. When such lands are acquired, multiple injustices take place as compensatory land goes for afforestation and not relief for the people. So the people lose their land which they have been cultivating for generations, are not entitled to proper compensation as they do not have a proper title, are not entitled for the "land for land" scheme, do not have the requisite skills to work the mines, have lost their community moorings, are dispersed and have no historical continuity with their homelands, have no cultural roots in either the area of their displacement or in

the areas of self-rehabilitation generally in the slums on the margins of illegality, have no political access to negotiate justice, have only the challenge to survive on the fringes and eke out an existence in a new form of slavery (Oskarsson, 2014, p. 22). Upto 80% of all people displaced by coal mines and 60% of those displaced by other forms of mining are Adivasis (Fernandes, 2009, pp. 105–132). Coal vision 2025 estimates 1.7 lakh families or 8.5 lakh persons will be displaced by 2025 when the land requirement will be doubled from the current 1,47,000 ha to 2,92,500 ha and a significant number will be in Telangana (GoI, 2010). In addition to displacement, open cast mining also leads to a drastic drop of the water table, which will affect agricultural productivity (Oskarsson, P., p. 33).

It is clear that land in the Scheduled Areas once belonged to the tribals. Until and unless the contrary is proved, the land in occupation by non-Adivasis should be deemed to have been taken from the Adivasis. So, the burden of proof lies on the non-Adivasis to show that land in their possession has been with them even before the Andhra Pradesh Agency Tracts Land Transfer Act of 1917, which restricted land transfer from the Adivasis to the non-Adivasis (GoAP, 2006, p. 57). This has also been expressly spelt out in the judgement of the Andhra Pradesh High Court. The objective is to preserve tribal autonomy and their culture, to help in their economic empowerment and political justice for preservation of peace and good governance in the Scheduled Areas. The word "regulate" in the allotment of land to the members of the Adivasis in the Schedued Areas must be read as an endeavour to ensure regulation of the land only for and among the members of the Adivasis in the Scheduled Area (Andhra Pradesh High Court, 1997).

However, as Table 6.1 makes amply clear, notwithstanding the express views of the High Court of Andhra Pradesh, only 46% of cases were decided in favour of the Adivasi and in terms of area it was just 41.5%. The actual land restoration was 40.8% and in terms of area it was 36.8% while in 5% of the cases the Adivasis have won the case, but their land has not been restored.

The current situation in the agency areas is that the real Adivasis, and in particular the PVTGs (Particularly Vulnerable Tribal Groups), are distanced from the development while the big non-tribal landlords are happy maintaining a distance from all administrative and legal regulatory measures. We must recognize that land alienation cannot be addressed in isolation. A cascading process of immiseration quickly follows loss of a secure livelihood. Alienation of land itself, however, is just a small component of this entire process of alienation, albeit an absolutely essential one. It is therefore imperative to view this single phenomenon within the holistic context of tribal existence and tribal cultural ethos (Andhra Pradesh High Court, 1997).

Adivasis remain far behind the commonly used human development indicators, it is 120–150 for Adivasis compared to 72 for the non-Adivasis of the state, 30% mortality for under-5 years, which, for Savaras and Gadaba, falls to over 50%. About 65% of children suffer from malnutrition

compared to others; 37% were illiterate, 26% for women, 60.5% for Dalits (Oskarsson, P.). As we wind up this section, we would like to quote the head of the committee formed by the Government of Andhra Pradesh to suggest a workable solution to the vexed problems of restoration of illegally obtained and occupied Adivasi land. Shri Koneru Ranga Rao says in his report,

> It is clear that the Tenancy Acts in the state neither govern nor regulate the tenancy in the state. In fact, it is due to the provisions in the Act that hundred percent of tenancy is hidden and informal. Because of this, the state is unable to control and regulate tenancy in any manner. Special Laws to protect Adivasis from land alienation have been violated and about 48% of Adivasi land in the Agency Areas is formally owned by non Adivasis. . . . Even now more and more land in passing in the lands of non Adivasis and if not checked with a strong executive force, very soon the tribals may not have any land at all.
>
> (GoAP, 2006)

The Land Scenario and the Adivasis of Gujarat

The state of Gujarat came into existence in 1960, as a result of the bifurcation of erstwhile Bombay state. The state may be broadly divided into two sub-regions on the basis of historical, sociocultural heritage and physical features. One is mainland Gujarat, and the other, peninsular Gujarat. The former was a part of Bombay Presidency; Saurashtra and Kutch became a part of Bombay state in 1956.

The inequality between the conditions of the Adivasis and the upper castes is highly pronounced in Gujarat (Rodriguez S, 2014, p. 68). Adivasis are not a part of economic growth in terms of gain but are a necessary part as its victims. In their pauperization and immiseration, they perversely pay the opportunity costs of the growth of dominant castes. Alienation of Adivasi land has been a powerful factor in the economic, social and political exclusion of the Adivasis in Gujarat (Patel, 2014). Today's land scenario in Adivasi areas is one where progressive legislation exist, such as Tenancy, Land Ceiling, Restoration Laws, all long awaited, but implementation was forestalled by new measures with drastically different orientations. Tenancy reform was vigorously pursued by Patel tenant farmers, who pushed the progressive boundaries of the law to ensure that Patel tenants got the maximum land from the mainly Brahmin landlords. Implementation in the case of the Adivasis was poor, required surveys were never done and rights of common lands not recognized at all. These lands were later categorized as wastelands and made available for industry.

A little more than two decades after Independence, the landed Patel community had emerged as the political elite and began to leverage power to enjoy agricultural surplus with others paying the cost. Gujarat being the confluence of a number of rivers, dams were planned and constructed in

the adjacent states of Rajasthan, Maharashtra and Madhya Pradesh, where extensive displacement of Adivasis took place with little or no rehabilitation, while the waters were utilized for capital-intensive farming, ironically with labour displaced by the said dams. Adivasis from the neighbouring states paid the opportunity price while the rich farmers from Gujarat enjoyed the opportunity gain and invested their huge surplus into trade and business.

The next set of policies reflected Gujarat's vision for industrialization and capital-intensive farming through a neoliberal approach. The state pioneered mechanisms for quick conversion of agricultural land to non-agricultural, with prompt conversion of land upto 10 hectares.[5] In 2005, the state government resolved to give away "wastelands",[6] though the self-same revenue administration, not unexpectedly, continues to drag its feet to allot wastelands to the landless poor. While Adivasis make up 76% of the displaced by state infrastructure (mainly dams), Adivasis share in irrigated area is just 5% (Dholakia, 2000, pp. 3121–3124).

The implementation of tenancy laws and surplus land distribution had little impact on marginalized peasants as a significant proportion of the land that was released by law was never taken possession of by the administration and hence was never distributed. Uneconomical fragments were distributed to the Adivasis and over time were "lost" and a large number were excluded either by ignorance or plain apathy. A similar conclusion could be arrived at when verifying the extent of implementation of the abolition of usurious debt and debt bondage. A sample survey designed to look at community break-up of the displaced reveals that members of the ST communities bear the brunt of land acquisition for government projects, STs form 42% of the Project affected Persons, but in reality 76% of those displaced (Patel, p. 55). Article 73AA of the Revenue Code places a ban on transfer of title of a member of the Scheduled Tribe to a person who is not an ST and thereby protects Adivasis from land alienation. However, state government officials regularly use acquisition powers as though they were agents for private interests seeking to alienate those lands. The majority of the land acquired for the Gujarat Industrial Development Corporation (GIDC) at a fraction of its real value is Adivasi land, which in turn is leased back to private parties by the GIDC in order to earn hefty profits, an irregular if

Table 6.1 Implementation of Tribal Land Restoration Laws

Total cases booked		*Total area disposed*		*In favour of STs*		*Not in favour of STs*		*Restored to STs*	
No	*Land area (acres)*	*No*	*Land area (acres)*	*No*	*Land area (acres)*	*No*	*Land area (acres)*	*No*	*Land area (acres)*
72,001	321,683	70,183 (97.4)	315,132 (97.9)	33,078 (45.9)	133,636 (41.5)	33,319 (46.2)	162,989 (50.6)	29,398 (40.8)	118,505 (36.8)

not illegal way to bypass the protection imposed by 73AA on "illegal land transfers". In Baruch, this has ironically meant that non-Adivasis were able to sell their land for ₹30,000–40,000 an acre (Lobo and Kumar, 2007), while Adivasi lands were acquired by the state government at ₹5,000 an acre (Judge, 1999). Land acquisition has multiple fallouts for the Adivasi.

"In all the plans and projects to promote the industrial growth the Adivasis are disproportionately affected in Gujarat" (Patel). Like some other states attempting rapid industrialization, Gujarat too does not maintain any record of tenancy, though it claims to do so. No records are available at the district level at village or *talati* level. The village panchayat is not involved. Till July 2008, there were 20,841 cases involving an area of 30,986 hectares in the whole of Gujarat state. Out of these 20,039 cases were decided involving 29,956 hectares of land. It was reported that 19,518 cases involving an area of 29,399 hectares were decided in favour of STs (GSLC, 1979). As per the observations made to the author by the Director of the Legal Aid Centers across the tribal blocks of the state, the Adivasis are still fighting to occupy the land in the absence of the revenue authorities having failed to evict the non-tribal encroacher.[7]

The Land Scenario and the Adivasis of Maharashtra

Maharashtra has the second largest tribal population in the country next only to Madhya Pradesh. The tribal people number 85.77 lakhs and constitute 8.9% of the state's population. The major tribal communities are the Bhils, Gonds, Mahadev Kolis, Warlis, Koknas and Thakars, while the Katkaris, Kolam and Madia Gonds are classified as primitive tribes while 19 tribal communities have a population of less than 1,000.

Six districts – Thane, Nashik, Nandurbar, Yavatmal, Nagpur and Dhule – account for 54% of the tribal population. Major concentrations are in the western Sahayadri hills in Nandurbar, Dhule, Nashik, Thane and Raigad districts; and the Satpuda and Mahadeo range of central Gondwana in Gadchiroli, Chandrapur, Bhandara, Nagpur, Amravati and Yavatmal districts. Nandurabar has the highest concentration of STs, while undivided Thane district boasted of the highest ST population. As per the 2001 Census, over 90% of male and 94% of female tribal workers are engaged in cultivation and land-related activities on 6.34 lakh holdings covering 15.32 lakh hectares of the 94.7 lakh operational landholdings in the state. About 5.77 lakh holdings covering 15.37 lakh hectares are individual holdings while 0.57 lakh holdings covering 1.75 lakh hectares are collective holdings.

About 43% tribals in Maharashtra are landless and regional disparities are tremendous. More than 60% of the tribals in the Integrated Tribal Development Project (ITDP) areas of Pen in Raigad District, Yawal in Jalgaon District, Shahapur in Thane District and Pandharkawda in Yavatmal District are landless. However, landlessness is much lower (30%) in the ITDP areas of Gadchiroli and Bhamragad in Gadchiroli district and Ghodegaon

in Ahmednagar and Rajura in Chandrapur district. Industrialization and urbanization have contributed to severe landlessness in Thane and Palghar. Amongst tribes, the highest landlessness is among the Katkaris (83%) and Kolams (63%) PVTGs with the exception of the Madia Gonds with only 17% landless. Most tribals own poor quality land, thus size of landholdings does not reflect the actual area under cultivation. An overwhelming majority (85.8%) of tribal land is non-irrigated and only 4.3% of tribal households have irrigated lands.

About 27% of the states' cattle population and 19% of the buffaloes are with the tribal people, while 11% of the sheep and 22% of the states' goats are tended by the tribals. 25% of the poultry of the state is with the tribals.

Eviction from Forests, Land Settlements and Land Seizure Pre- and Post-Independence

The seizure of homelands and their conversion into reserved and protected forests took place at the hands of the colonial regime in all tribal areas of the state. In Thane district, nearly 401,566 acres of community land was taken over by the state and converted into forest of one or another description by a single notification. Tribals were granted alienable title to land in the names of the men on payment of revenue in cash to the state by the Land Settlement in 1856. The settlement made land a commodity which could be alienated, Section 73 of the Bombay Land Revenue Code (Act 5 of 1879) gave it legal sanctity. This colonial step facilitated alienation to (a) local peasant castes like the Agris or Kunbis in Thane and Raigarh or the Gujjars in Dhule, who moved into tribal areas from Gujarat; (b) non-cultivating landed gentry in ryotwari areas, like the Maldharis in Chandrapur and Gadchiroli districts or the Khots in Raigarh; (c) non-cultivating trading castes, merchants and contractors, who entered as shop-keepers, traders, timber contractors, alcohol vendors and (d) members of the lower nobility, officials in the army such as inamdars, izzafatdars, zemindars and faznadeiros, granted large tracts by the pre-colonial rulers. In Thane district, Marwaris, Vanias, Parsis and Muslims entered as moneylenders, shopkeepers, liquor contractors and timber contractors. With development of transport, consolidation of the administration and commercialization of agriculture, Gujjars from Gujarat moved into Adivasi areas in Dhule and Nasik districts like Shahada, Taloda, Nandurbar talukas, took over large tribal holdings and converted land to cultivate exportable cotton crops. The tribals became victims of exploitation, debtors, landholders unable to pay the revenue in cash and illiterate to decipher the documents their thumb impressions were taken on. The Adivasis could not negotiate the alien colonial judicial system and an alien language, which gave legal sanction for the patently illegal appropriation of land from the tribals and legitimized the debt trap. As a result, notwithstanding three land settlements of 1856, 1890 and 1920, majority of the tribals, particularly in the western tract were reduced to tenants, bonded

or forced labour and marriage serfs of the new owners – Marwaris, Parsis, Vanias, Gujjars and Muslims.

In the post-colonial era, alienation of tribal land spread to urban and industrial areas. The expansion of the Mumbai, Pune, Nashik, Aurangabad, Nagpur and a host of other cities wiped out entire Adivasi hamlets. As many as 1.5–2 lakh Adivasis inhabiting 72 Adivasi hamlets and 152 Adivasi slum settlements in Greater Mumbai since pre-Independence are evicted or awaiting eviction. Industrialization has played havoc in Mumbai, Thane and Raigad and Chandrapur districts. Next came mines. Western Coalfields near Bhadravati acquired Adivasi lands resulting in their eviction. Coal, limestone mines and cement factories situated at Padmapur, Nilzai, near Chandrapur and Murpaar near Chimur did the same. Land continued to be lost to private resort developers like Sahara for Amby valley and other resorts in Karjat, Khandala, Lonavla, Igatpuri, Kamshet, Mahalmirya and a host of other hill stations or farmhouses in Lohara and Ballarpur area of Chandrapur district, the place names are illustrative not exhaustive. The threat grows and urbanites seek cooler climes in the summer. Ironically, a district collector can impose conditions but cannot refuse permission.

The 1971 Census figures of tribal landholdings, which correspond to 1961–71 decadal conditions indicate that during the period immediately after the amended Bombay Tenancy and Agricultural Lands Act in 1957, the number of tribal cultivators fell from 7.25 lakhs in 1961 to 5.61 lakhs in 1971 as a result of this important land reform legislation. The fall in the number of tribal cultivators by 1.64 lakhs shows that 22.62% of the tribals were rendered landless during the implementation of tenancy legislation. Similar was the case when the Tenancy Act was passed during Home Rule to protect the tenants. In each tenancy legislation, the landed elite were successful in extinguishing rights and eradicating documentary evidence with the collusion of both the revenue officials and functionaries rendering "tenants at will" invisible in law and frustrating the objectives of the law, which was ownership for the tenant. The result was that widespread alienation of tribal lands continued unabated. In 1972, a committee appointed by the Maharashtra Sarvodaya Mandal found that in 57 villages in Shahada taluka of Dhule district, about 10,000 acres of land were transferred to non-Adivasis. Dhule District Co-operative Bank made a survey of ten villages and found that about 2,000 acres of land had been alienated. A Government of Maharashtra committee enquiring into the land problems of Adivasis noted, Adivasi land being leased in by non-Adivasis and later on purchased under the Tenancy Act in Nandurbar taluka of Dhule district alone!

Consequently, post-Independence land reform laws were sadly stillborn for a good section of expectant tribals, as their premises, interpretation and implementation remained imprisoned in the ironclad frame of the relationship between the landlord and the tribal cultivator that had been evolved during the colonial period, to the immense detriment of the tribal cultivator. Instead of the tenant becoming the owner of the land on "tillers day", it

resulted in the alienation of a good proportion of tribal tenants losing their lands to landowning elite groups.

Impact of the Restoration Acts

Morchas, demonstrations and *andolans* by the Shramik Sanghatna in Dhule and in Bhoomi Sena Palghar called for prohibitions on transfers of Adivasi lands to non-Adivasis. The agitations forced the government to take note of the alarming situation. The Vartak Committee was appointed in March 1971 and submitted its Report in April 1972 (Vartak Committee, 1972). The committee recommended restrictions on transfer of Adivasi lands and restoration of alienated lands leading to the government issuing an ordinance to prohibit the transfer of lands held by Adivasis to non-Adivasis and to restore lands transferred in contravention of legal provisions (Maharashtra Ordinance 13 of 1974) on 6th July 1974, which was converted into the Maharashtra Land Revenue Code and Tenancy Laws (Amendment) Act 1974. The government passed another act viz. the Maharashtra Restoration of Land to Scheduled Tribes Act (No. 14 of 75), which came into force from 1st November 1975, providing for restoration of lands transferred to non-Adivasis from 1st April 1957 to 6th July 1974, by way of sale, gift, exchange. The act was challenged by the landed elite but the judgement of the Supreme Court Bench of O. Chinappa Reddy, A.P. Sen and E.S. Venkatramiah in Lingappa Pocahanna versus State of Maharashtra and another and Kalu Gopya Banjari versus State of Maharashtra and another on 4th December 1984 upheld the validity of Act 14/75 while dismissing the appeals noting "that in the Constitution, the Scheduled Tribes, as a class require special protection against exploitation"; and further that,

> [I]n the past 40 years, most of the tribal societies have come under attack by economically more advanced and politically more powerful ethnic groups. . . . the greedy land grabber and exploiter. . .. who infiltrated into tribal regions.

This "triggered a struggle for land in which the aboriginal tribesmen were usually losers, and deprived of their ancestral lands, turned into impoverished landless labour". The judgement confirmed that the concept of distributive justice is

> removal of economic inequalities and rectifying of injustice resulting from dealings or transactions between unequals in society. . . . It means that those who have been deprived of their properties by unconscionable bargaining would be restored their property. . . . The impugned act is intended and meant as an instrument for alleviating oppression, redressing bargaining imbalance, cancelling unfair advantage and generally overseeing and ensuring probity and fair dealing.

But, despite the lofty judgement, the actual implementation of these acts shows how the same powerful sections of society managed to ensure that the unfair advantage continued. The most striking fact that emerges is that an overwhelming majority of the cases have been decided against the Adivasi. Out of a total of 45,534 cases filed under both acts, land was restored in only 20,031 cases, that is a success rate of only 43%.

The fact that mass organizations like the Shramik Sanghatna, the Bhoomi Sena, the Kashtakari Sanghatna, Shramik Elgar, Sarvahara Jan Andolan, Shramik Kanti Sanghatna, Shramik Mukti Dal, Shramjivi Sanghatna and other mass fronts like the Soshit Jan Andolan, and left party formations are active in the three districts of Thane, Raigad Nashik, Dhule and Nandurbar and now Gadchiroli probably explains why cases continued to be filed under Act 35/74, after the campaign for initiating suo-moto proceedings ended.

Extent and Patterns of Tribal Land Alienation

The severity of land alienation is not uniform across the tribal areas. It varies from district to district and within a district itself. The variation across the state is shown in Table 6.2a.

The Tribal Research and Training Institute (TRTI) conducted a survey in 1988, which indicated that the major forms of alienation were sale (51.49%) and lease (31.36%). The monetary recompense that may have been received was mainly to meet consumption needs (40.8%) and for debt redemption (25.89%).

Table 6.2b indicates that title to land, particularly of land cultivated by unrecorded tenant cultivators, is rapidly passing on to new buyers. The hitherto value of the land, though suppressed before sale, has become real for

Table 6.2a Severity of Tribal Land Alienation

District	*Talukas with severe land alienation*	*Talukas where land alienation is negligible*
Thane	Dahanu, Wada, Palghar, Shahapur	Jawhar, Mokhada, Talasari
Nashik	Dindori, Igatpuri, Nashik, Baglan	Peth, Surgana, Kalwan
Dhule	Nandurbar, Shirpur, Sakri, Taloda, Shahada	Akrani, Addalkuwa, Nawapur
Ahmednagar		Akola
Yavatmal		Kelapur, Yavatmal
Nanded		Kinwat
Chandrapur		Warora, Rajura
Amravati		Chikhaldara, Dharni
Gadchiroli		Sironcha, Aheri, Etapalli, Dhanora, Kurkheda, Armori, Charmoshi

Table 6.2b Extent of Land Alienation in Thane

Extent of area alienated	*Percentage of cases*
1–2 acres	43%
3–5 acres	33%
Over 5 acres	24%

new purchasers who have spent hard cash to procure the land. They are unaware of the history of the area and therefore take steps to get possession even with the attendant conflict as long as it is manageable.

Distribution of Government Wastelands

There are large areas of government wastelands, previously community lands, in every village of the state. Some of these lands were distributed to landless persons in the 1970s. Each person was granted 1–2.5 acres of land. A study by K. Gopal Iyer (Gopal Iyer, 2002) in 24 villages of the state showed that 24.5% of beneficiaries were found to belong to scheduled tribes, and thus the distribution was in line with the priority norm accorded for the selection of beneficiaries from weaker sections. But the norm has been violated elsewhere, where 79.31% and 56.6% respectively of beneficiaries were non-SC and non-ST. Ironically, STs received smaller areas of land than others; 24.5% STs received only 19.74% of land distributed.

Implementation of Ceiling Laws

The Maharashtra Agricultural Land (Ceiling on Holdings) Act 1961 imposing ceiling on holdings became operative on 26th January 1961. The ceilings prescribed in the act were revised in 1972, and the revised ceiling came into force from 2nd October 1975. A study by K. Gopal Iyer showed that 80.5% of the landowners from whom land was acquired belonged to the upper and middle castes. However, land from large landowners among the lower castes and tribals (4.1%) were also acquired. Under the ceiling act, 0.93 lakh tribals were granted 1.24 lakh hectares of ceiling surplus land. About 64% of this distribution took place in the Konkan and Amravati revenue divisions. In Adharne village (Sateri, Batemal and Hedoshi Thakurwadi) of Pen taluka, Raigad district, 63 Adivasis were beneficiaries of 363 acres under the distribution of ceiling lands. However, in reality no land was handed over to them. One can safely conclude that the distribution of ceiling lands is one of the weakest aspects of the implementation of the land ceiling programme. It has had very marginal impact on the economic condition of the beneficiaries. This is borne out by villages studied by the IAS probationers of the Lal Bahadhur Shastri National Academy of Administration in 1994.

Land Alienation and Its Impact on Tribals

Land had not merely an economic significance as a survival resource, it had also a social (the basis of a person's sense of belonging to a specific cultural community), cultural (the link to traditions, ethos and way of life) and political significance (the material basis for the power of the elders to manage the community) (GoI, 1987). In the words of a tribal elder, land and forests in the "present time" are the means through and by which the community hands over its past (history, culture, ethos, traditions) to the future generations. Land is the vital "permanent" link between "transient" generations of human beings and thereby an embodiment of consciousness. Loss of land, that is the transfer of resources or the mere change in the land use pattern, whatever the scale of such change is by itself is not alienation, it is the "material basis" for alienation. Anthropo-sociologically alienation is a systemic concept (ibid. p. 1), as the individual or community are uprooted from the concrete articulation of their consciousness and are progressively pushed into anomie. The criticality of land alienation in the life and psyche of the tribal people therefore can never be underestimated.

While admitting that the process of tribal land alienation is a long and complex process, a broad grouping of the various methods processes through which alienation of tribal landholdings took place can be made. Out of the four, two are related to the colonial past of the country and the other two, in the post-colonial era, are related to the dominant social philosophy, the processes of nation building, the role of the welfare state and the development process. The first process, basically categorized as state-enforced land alienation, is best picturized by the brutal suppression of shifting cultivation of the tribal people and state appropriation of communally held largely forested tribal land, its merger into the reserved forests and subsequent transfer to timber traders and forest contractors from "outside" primarily for commercial exploitation. Tribal land alienation took place with the force of law and the praxis of the colonial state with total disregard to the catastrophic effects on the people. As such land alienation was one of the central issues in most of the tribal upsurges against the colonial state in the late eighteenth and nineteenth century. The second process, broadly called state assented tribal land alienation, covers the transfer of tribal lands into the hands of non-tribals, largely through force or fraud, the use and abuse of law and the legal process by the moneylenders, traders- and contractors-turned landlords, with the connivance and collusion of the lower revenue functionaries and enforced by the courts. This process began during the period of British colonialism. The colonial state both directly and indirectly not only condoned but permitted if not abetted the practice. The third process, termed as state-acquiesced land alienation, is in essence a continuation of the process mentioned previously, which took place during the first two and half decades of the post-Independence period. Rather than correcting the attempts at feudal distortion of land relations which were intensified during British

rule, the state accepted these crucial elements as an "a priori" condition of even land reforms and also of the legal framework for implementation of policies and programmes in the tribal areas, notwithstanding the strong remarks of the Constituent Sub Committee in 1949, which emphatically observed that "the anxiety of the hill people about their land and their fear of exploitation are undoubtedly matters for making special provisions". Ten years later the refrain was the same (Elwin, 1960). This process of alienation of tribal land to non-tribal individuals took place often within the matrix of the law itself and with the active collusion of the lower revenue bureaucracy with the broad consent of the higher revenue bureaucracy and the intervention of the judiciary. The fourth form, falling in the category of state-sponsored land alienation, concerns the appropriation of tribal land in the name of development and progress for schemes and projects. This process, wherein the transfer of the resource takes place through the aegis of the state, which acquires the resource under the operation of law, the colonial Land Acquisition Act, and then directly, as in the case of mines, industrial projects and the like, or indirectly as in the case of irrigation projects, transfers the resources to non-tribals and by and large economically better-off sections, has registered a very sharp growth in the post-Independence period and has reached unimaginable proportions. The lands of more than 100 lakhs tribals has been alienated in this manner in five decades. The 28th and 29th Report of the Commission for Scheduled Castes and Scheduled Tribes launches a scathing attack on the relentless internal colonization of the tribal homelands (Fernandes and Thukral, 1989), carried out in the name of development, which has pushed the tribal people to the brink of survival, their conditions bordering on ethnocide (GoI, 1992, 1994). Yet another official committee categorically states "tribals and forests are economically inseparable". This process termed as state-sponsored land alienation by the operation of law conceptually comes close to state-enforced land alienation during the colonial period.

Land Reforms Post-Independence

The beginning of land reforms in tribal areas predate Independence, the reasons however were different as we will see subsequently. Already towards the end of the second settlement, the administration was concerned with the continuous alienation of tribal lands to non-tribals and the growing incidence of tribal disturbances and the potentiality of these to develop into a full-blown tribal unrest. For example in Thane district within 25 years post the first land settlement in 1856, virtually all the lands granted to tribals at confessional rates of cess had been alienated to the non-tribals. As a result, the administration leased out lands again to the tribals in the second settlement in 1890. Even before the 30 years of the second settlement, the lands granted to the tribals were already in the hands of the non-tribals. The growing concentration of the lands in the hands of the landlords and

the progressive impoverishment of the tribals, who were pushed into rack renting and serfdom, motivated the administration to offer the tribals lands on "non-alienable tenure" in the third settlement in 1920. However, to the surprise of the administration, though not without valid reason, less than 150 tribals applied for land under this tenure in the whole district. The tribal tenants and bonded labour were coerced not to apply for land, for fear that they would desert the landlords for new lands granted under the non-alienable tenure. The situation in the tribal areas remained as dismal as ever, the administration was not able to touch the landlords who were protected by the colonial laws and the courts.

On the other hand, land reforms, not very high on the agenda of the leaders of the Independence movement in the early years, were considered important in the latter days. The positive declaration about land reforms begins at the Karachi Conference of the Indian National Congress. In December 1947, Rajendra Prasad convened a meeting of the revenue ministers to decide on land reforms and appointed the J.C. Kumarappa Agrarian Reforms Committee. The recommendations of the committee became the basis of subsequent agricultural policy (NCA, 1951, para 65.2.14). After winning the provincial elections, several agrarian reform legislations followed, such as the Bombay Money Lenders Licensing Act, 1946, the Bombay Agricultural Debtors Relief Act 1947, the Bombay Prevention of Fragmentation and Consolidation of Holdings Act 1947, the Bombay Tenancy and Agricultural Lands Act 1948, which replaced the 1939 Act, the Zamindari Abolition Act 1948.

The impact of all these legislations on the tribal people was not as one would have anticipated. The land reform laws were based within the same matrix of the colonial land laws and practices. The laws placed the tribal landless and the landlord on the same legal footing, a situation of utmost inequality, thereby defeating the process. The legal presumptions and procedures, which were also of colonial origin were retained, thereby negating the intention of land reforms. During this phase of land reforms, one can safely conclude that the laws were inappropriate to address the problem of tribal land alienation. The courts remained bound by the procedures of adversary jurisprudence in which the tribal could never stand a chance in an adversarial position vis-à-vis the landlord, the administration was "incapable" even when willing to implement the law though in fact the lower revenue administration invariably sided with the landlords either actively colluding or at best conniving with the landlords in their efforts. When talking to a large number of tribal elders in the areas on the impact of land reforms in their villages, they told us that a fairly large number of tribal tenants were evicted from their lands under the provisions of the Tenancy Act of 1948 as lands were "resumed" by the landlords for personal cultivation or tribal tenants were forced to "surrender" their lands on the grounds that they were "unable to cultivate" them, or tenants names were deleted for non-payment of rent, or tenants sent applications to the authorities saying that

their names were wrongly entered in the records. All these methods through which land reforms were defeated were possible because the higher administration did not bother to verify the actual situation or did not effectively communicate with the tribals or take effective steps to do so, it was either collusion, connivance, incapability or non-concern. Tribal land reform was impossible with a mechanical interpretation or implementation of the law.

On the other hand, a more pernicious fate was in store for the tribals as names of tribal tenants were quietly deleted from the records. In these cases, for practical purposes, the exterior remained the same, the tribal tenant continued to cultivate the land, but revenue records underwent a major metamorphosis with the active connivance of the *talathis* (village land officers) largely from peasant castes. Tenancy went underground, in the records or in fact, the tribal tenant farmers became labourers with the landlords resuming their titles. Many studies, the most recent of them being the extensive study undertaken by the IAS Probationers, confirm this fact as they show that the incidence of tenancy was very low or non-existent in the hilly areas, which approximate to tribal areas (LBSNAA, 1994, p. 18). While this finding implies that the lands in the tribal areas were being "personally cultivated" by the landlords, the same study also finds that absentee landlordism was very high in the same areas, and the landlords lived in (distant) towns and had other occupations (LBSNAA, 1994). Therefore, again by inference, we can safely conclude that the tribals in possession of and cultivating lands in these areas were largely unrecorded tenants or tenants who were forced to surrender their lands or tenants who names were deleted from the records. A combination of the three situations effectively defeated the goal of the tenancy act.

Tenancy legislation was a relative failure in the case of the first set of landlords mentioned earlier in the section "Extent and Patterns of Tribal Land Alienation". The land records indicated ownership of the non-tribals, the method of cultivation being shown in the records as cultivation by "hired labour". Hence, though land was with the tribal tenants, the land records implied that the tribals had no rights to claim the land as tenants. In the case of the second group of landlords in the section referred to previously, the tenancy laws were defeated through "landlords resuming the lands for personal cultivation"[8] "voluntary surrenders", "deletion of tenants names", "voluntary withdrawal of tenants names, nonappearance of the tenant".[9] In almost all cases the termination of the tribals nexus with the land was done even without recourse to the legal process.[10] In the case of the third and fourth sections of landlords mentioned in the section on land alienation patterns, land reform met with failure because of the extensive practice of "partially recorded tenancies" with respect to highland paddy lands and "unrecorded tenancies" in the low-lying paddy lands ensured by a cooperative administration. Most interesting was that virtually all highlands whether under cultivation or not were shown as "varkad" lands, with naturally growing grass, to which the tenant had no right of tenancy (GoM,

1974, ibid.). It is therefore no surprise that the actual land that went to the tenants constituted only 8% of the gross cropped area, even when some estimates point out that the incidence of tenancy in western Maharashtra for example consisted of 50% the total cultivated area (LBSNAA, 1994). The contradictions however abound. In the tribal-dominated talukas of Thane District, the ongoing movement of the tribals and the untiring efforts of the Kisan Sabha actually ensured a very high rate of success in the implementation of the Tenancy Act. This only goes to confirm that without the support of an organization, the tribals lost out in the Tenancy Act implementation.

What is alarming is the 1971 Census figures, which show that during the decade 1961–71, alienation of tribal lands was found to be on the increase and the number of tribal cultivators fell from 7.25 lakhs in 1961 to 5.61 lakhs in 1971. While the fall in absolute terms is 1.64 lakhs, it points out that 22.62% of the tribals were rendered landless during the decade. What is still more alarming is that this was the period when the implementation of tenancy legislation was in full swing. As a matter of course, one would have expected that a large number of tribal tenants would have become landowners and by implication the numbers of cultivators would have considerably increased during the period. A number of inferences are possible; first, the implementation of tenancy legislation with respect to the tribal people was very tardy in the state, second, the implementation of tenancy legislation had an opposite effect to what was intended, that is landlords threw off their lands a large number of tribal tenants, third, the extent of co-temporaneous land alienation was so high as to negate the effect of the land grants under the provisions of the law. The study of the IAS probationers indicates that in Vidharbha only 17% of the landownership went to the tenant, in western Maharashtra only 33%. Their findings indicate that the reason why bulk of the leased land was returned back to the landlord was because the tenants voluntarily surrendered lands to the landlords (a highly suspect fact), tenants were not in possession of their lands on tillers' day, landlords resumed their lands for personal cultivation, and tenancy could not be proved because tenants had no lease deeds or rent receipts as most were poor and illiterate (ibid., p. 24).

Even in the cases where the tribals were able to come into possession of their lands under the Tenancy legislation, alienation of tribal lands continued apace either through illegal entries into the mutation registers or permission given by collectors rather freely to land transfers from tribals to non-tribals (see Vartak Committee, 1972). As a result, certain restrictions on transfer of tribal lands were imposed by the Maharashtra Land Revenue Code, 1966, which came into force on 15th August 1967. Broadly, these provisions prohibited the transfer of tribal land without the permission of the collector/deputy commissioner. But such permissions appear to have been given as a matter of routine, the tribals were induced to sell their lands because of indebtedness and poverty. Moreover, as cultivation techniques of the tribals were primitive and yields from the land were poor, the tribals are

largely dependent on minor forest produce for their maintenance. Growing alienation from the forest and a rapid depletion of the forests largely due to clear felling and illegal logging made access to the forest difficult for the tribals, forcing them to continue to part with their lands to meet mainly sustenance needs. Large-scale deforestation, construction of road networks, opening of industries and mines in tribal areas and all-round population increase have brought further pressure on the lands of the tribals.

This alienation of land could only be by force, whether of poverty, the law, the land sharks or the courts. A committee was set up, under the chairmanship of the revenue minister in 1971, to examine this alarming trend,[11] and on their recommendations two measures were adopted by the Government of Maharashtra in 1974–75, that is (1) The Maharashtra Land Revenue Code and Tenancy Laws (Amendment) Act, 1974 (Mah. 35 of 1974) and (2) The Maharashtra Restoration of Land to the Scheduled Tribes Act, 1975 (Mah. 14 of 1975). While the first legislation pertained to restoration of lands alienated to non-tribals in contravention of the law, the second legislation provided for restoration of tribal lands alienated even through validly effected transfers. As per statistics available with the state government, till December 1993, 45,501 cases were decided of which 23,748 were in favour of the tribals and wherein 22,556 tribals, roughly 50%, were given possession of the lands. The statistics however are incomplete and do not indicate the number of tribals who were prima facie entitled to restoration of their lands. A studied guess would be in the region of over 1.5 lakhs. One indication about the likely number of tribals entitled for restoration is the implementation of the restoration acts in Thane district of Maharashtra. According to data available with the revenue authorities, in the case of Thane district, whose proximity to the urban centres is an important factor, with respect to cases filed for restoration of tribal lands, till 1992, 6,060 cases were filed of which 4,412, that is 73% of the cases were dropped even without notice to the tribal, 1,614 enquiries were conducted, but all the cases were challenged in the Maharashtra Revenue Tribunal. At the end of a lengthy process 350 tribals, that is 5.77%, were to be restored their lands, but the order in these cases was challenged in the Supreme Court because of which these cases remained unresolved till recently. Even in these cases whether restoration has actually been completed remains to be confirmed.

The failure in the implementation of the restoration of tribal lands can be laid squarely at the door of the revenue department. The internal contradictions of the system are visible at their very best in the case of implementation of land reforms. One arm of the government, the legislature, is alarmed by tribal land alienation and seeks to curtail it by legislation. Indeed, the legislature has gone much further. It has made a law restoring lands that were also validly or legally transferred. The logic for such a step is understandable since tribal land alienation had reached alarming proportions and posed a threat to the survival of the tribal peoples and the credibility of the state. In addition, the legislature is informed that tribal land alienation has also

taken place considerably due to the revenue bureaucracy itself, and its intervention in the process has given the transfer of tribal lands a cloak of legality. But then the legislature falls into the same trap of colonial governance. It cannot not trust the people or their organizations. It had to transfer the task of implementation of these two important land reform laws precisely to the people who had effectively scuttled the implementation of all land reforms to date, the revenue department. The unanswered question remains – was this by default or by design. Irrespective of the answer, the net result was the same. The revenue bureaucracy effectively scuttled the two laws. The major reasons for the failure of these two legislations has been the co-option of the lower revenue bureaucracy particularly in the case of the 1974 legislation. The same bureaucracy were asked to enquire into alienation of tribal land post 1948, even though the alienation took place precisely because of the connivance and collusion of the lower sections of the revenue bureaucracy. The prohibition on transfer of tribal land to non-Adivasis under Sections 36 and 36/A of the Maharashtra Land Revenue Code has been systematically bypassed by lower revenue personnel and though such a transfer is patently illegal, the same has been entered in mutation registers by *talathis* and confirmed by the circle inspectors or the *tehsildar*.

While the Vartak Committee under the Chairmanship of the then-Revenue Minister Shri H.G. Vartak observed that permission for transfer of lands from the tribals to the non-tribals have been given by collectors rather freely, the same officer who permitted the transfer is now required to declare his earlier orders illegal, at best a travesty of justice. Another major reason was the complication in matter of appeals. While the 1974 Act permitted two appeals, the 1975 Act permitted only one appeal to MRT, even though both the acts had the same object. This anomaly was only rectified in 1980, by which time it was worthless as the rectification had no retrospective effect. Then the legislature went back to type, and under pressure of the landed classes who were in possession of tribal lands, began to introduce loopholes in the law. The revolutionary character of the law was already forgotten in the public mind, and parties had already made political capital of the law. Now it was time to water it down so as to make it toothless. So little of the law was done by way of implementation that this made no difference. Then to compound the internal self-destructive potentiality of the two laws, four amendments were subsequently made which carefully introduced defects in the laws itself, dislocation in the process of verification and restoration and irregularities in their implementation (Kulkarni, 1974, 1985). The die was cast, the law was yet another statute devoid of meaning.

The failure of the restoration laws therefore raised the spectre of a conspiracy of the non-tribals and the bureaucracy to defeat the implementation of the will of the legislature. The facts in the case of Thane district at least seem to indicate deliberate steps of revenue bureaucracy in that direction, otherwise how does one explain the large number of suo-moto cases with the tribal ignorant of the litigation? There is no explanation why such a large

number of cases were summarily dropped without intimation to the tribal, to give him an opportunity for appeal. There is no shortage of instances when judgements in favour of the tribal applicant were intimated to the landlord before formal declaration of the judgement or the handing over of possession to the tribal was delayed allowing the landlord time to obtain a stay. Other tricks of the revenue officers have been repeated adjournments whenever the tribal was present and sudden ex-parte orders when the tribal remained absent on an odd occasion; in other cases, there are reports that advocates were permitted to non-Adivasis and not to Adivasis. The restoration laws thereby set an effective seal on the land alienation that took place in the intervening period between the tenancy law promulgation and the date of the law, giving legal sanctity to what was de jure an illegal act. Most tribal elders are confirmed in their belief that it is impossible to implement land reform legislation. It is difficult to controvert their belief.

Notes

1 Communitization is a term invented by R.S. Pande, Ex Chief Secretary of Nagaland to encapsulate the initiative to hand over all welfare functions, including monitoring the government functionaries, to the community.
2 Footloose labour is a term created by Jan Bremen, an eminent economic historian, who has worked extensively with migrant Adivasi labour in South Gujarat.
3 This figure arrived at through various calculations is explained at length in Fernandes et al. (1989).
4 My assessment would place the figure higher, somewhere in the region of 20 lakhs or so given the average rate of tribal displacement to be in the region of 40% of the total displacement. The struggle of the people facing imminent displacement by Sardar Sarovar in Gujarat has thrown up the woeful inaccuracy in determining the extent of displacement. What is clear is that project authorities deliberately underplay the numbers to be displaced to get sanction. In the Sardar Sarovar submergence area, a large number of villages have not been surveyed accurately even to date.
5 Ibid p. 15.
6 Originally, the common lands of the village which supported a large number of agrarian needs like fuel, fodder and grazing were the lifeline of the marginal Adivasi farmers, which were administratively "converted" into wastelands and distributed for corporate farming.
7 Discussions with J. Idiakunnel, Founder Director of the Legal Aid Services in Gujarat.
8 In Maharashtra alone, 73,546 landlords resumed their lands for personal cultivation (see LBSNAA ibid., p. 23). There is however no explanation for the landlords' sudden love for agriculture, particularly when these lands were with the tenants for generation, except perhaps that they saw the imminent likelihood of the land being transferred to the tenants.
9 See NCA, 1976, Part XV, which refers to one million tenants who lost land rights due to voluntary surrender, non-appearance, failure to pay instalments in time. The reports also mention 0.85 lakh cases of tenants whose lands were resumed by the landlords and 1.21 lakh cases of voluntary surrender of lands by tenants to landlords. If the unofficial data collected with respect to the tribal

tenants in Dahanu taluka of Thane is any indication, then these one million tenants would include a very large proportion of tribals.

10 For extensive information on the effects of the Tenancy Legislation on tenants, see GoM (1974).

11 In fact, there are two important reports presenting the situation of land reforms with respect to the tribals – Vartak Committee (1972) and GoM (1974).

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7 Land and Tribal Human Development

Part II

Pradip Prabhu

Land and Tribal Human Development in Chhattisgarh, Madhya Pradesh, Rajasthan and Odisha

The central Indian tracts include the states of Chhattisgarh and Madhya Pradesh, at the centre, Odisha and Jharkhand to the east and Rajasthan to the west and Telangana to the south and represent the heartland of Adivasi India. While the erstwhile kingdoms of the Gonds stretched south from the Narmada to the Godavari, a vast swath of territory called Gondwana, in many respects, reflects the core reality of Adivasi homelands; resource-rich region but poor people, an irony that is not lost to the discerning.

Chhattisgarh

Chhattisgarh is traditionally the northern half of the Gond homeland which stretched from Jabalpur in the north to Adilabad in the south. The state was carved out as a new state by government from Madhya Pradesh on 1st November 2000, with a population of 25.54 million (2011 Census) with 76.76% living in the villages. The Adivasis numbering 78,22,902 live majorly in the forest and mineral-rich northern and southern part of the state. In the main southern mineral-bearing and extensively mined districts of Bijapur, Narayanpur and Bastar, the Adivasi population exceeds two-thirds of the population, though in pre-Independence time the Adivasi population was over 90%, and the period post-Independence indicates both state-sponsored and state-acquiesced ingress of non-tribal populations, including the rehabilitation of refugees from Bangladesh, which in turn has triggered extensive in-migration of other non-Adivasis into the area.

The districts with large Adivasi populations are also mineral-rich districts; in fact, 44,483 million tonnes of coal are estimated in the Koriya, Sarguja and Korba districts (see Table 7.2). Koriya district has the largest seams bearing high-calorific value power-grade coal in the whole country; Dantewada district is the only place in the country where tin ore is located in casserite-bearing pegmatities, which are reportedly rich in other rare minerals, such as lepidolite a source of lithium, cesium (atomic mineral) and

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Table 7.1 Adivasi Population in Northern and Southern Districts of Chattisgarh

	Households	*Population*	*Adivasis*	*Percentage*
Southern districts				
Narayanpur	27,982	139,820	108,161	77.4
Bijapur	54,757	255,230	204,189	80
Dantewada	120,850	533,638	410,255	76.9
Bastar	311,538	1,413,199	931,780	65.9
Northern districts				
Koriya	153,274	658,917	304,280	46.2
Jashpur	192,570	851,669	530,378	62.3
Surguja	526,049	2,359,886	1,300,628	55.1

Table 7.2 Minerals Available and Mined in the Tribal Districts

District	*Minerals available/mined*
Narayanpur, Kanker, Dantewada, Bastar,	Hematite, bauxite, dolomite (calcium+magnesium carbonate), lithium, cesium and rubidium, limestone
Koriya, Sarguja, Jaspur, Korba	Coal, bauxite

rubidium. This is in addition to the vast deposits of hematite and high-grade iron ore being mined by multiple state and private steel manufacturing industries. Large non-Adivasi groups have entered the hitherto exclusive Adivasi tracts as mine labour, workers in ancillary industries and other services, creating a huge pressure on land for housing.

Historically, Chhattisgarh was known as the rice bowl of the nation and is still a nature-rich state with 46.1% of its forest area admeasuring 1,37,89,836 of a total area of 63,55,166 hectares. About 24,45,159 hectares have been declared as reserve forest while not surprisingly 39,10,007 hectares are recognized as community forest. When the state was part of erstwhile Madhya Pradesh, over 90% of the forest land which was not surveyed or legally settled, belonged to the Gond people but was appropriated by the state. While the state generally boasts of its rich hoard of minerals, its rich agriculture and the rich traditions of its Adivasi people, the hype covers a series of challenges that are negative but a necessary result of its bounty.

The establishment of the Bailadila Iron Ore Mines, the largest in Asia, in 1957, would be considered the second major negative process impacting human development of the Adivasis of undivided Bastar. That is if we admit as the first major process that impacted the Adivasis' present and future being the immense negative fallout of the fracturing of organic tribal community homelands into separate states, thereby making the tribal people

an ineffective minority as collateral damage. The unity of the Gond people in their homelands prompted their challenge to the colonial intrusions in the popular Bastar Uprising of 1775 and several others that followed. The repeated challenges to the colonial state right through the period of British rule, in all likelihood prompted the colonial rulers to pass on some of the lessons they had learnt during their rule; one message would definitely have been that tribal people organized as a people who recognized and enjoyed the sense of belonging to a homeland, would not let the state rest on its laurels. So also if community held and managed lands were not converted into private ownership, the practice and traditions of participatory democracy, collective decision-making, collective ownership and the sense of responsibility of each part for the well-being of the whole, whether it be the farm or the farmer or the farmer's family or the farmer's community; the foundation of internal solidarity that was the core value behind the Adivasi sense of freedom and dignity that prompted them to repeatedly revolt and resist the state could not be weakened if not eliminated altogether (Longkumer and Jamir, 2014). There is no way to describe the impact of the decision to fracture integral homelands into different states ruled by different governments on the human development of the tribal people, but the dismemberment of their homelands led to the fracturing of their consciousness and the likelihood of their re-emerging as a people to claim their legitimate rights.

The next intervention of the Indian state could be definitely considered the third major issue impacting the human development of the Adivasis of Chhattisgarh in myriad major ways. The project was iron ore mining at Bailadila in the erstwhile Bastar district. The mine was a plateau which is still being mined after 50 years of steady extraction of iron ore. According to the official records, the Bailadila mining project displaced only six tribal families as the huge plateau holding the iron ore was community land, as the colonial state never admitted common property and as the state was the repository of all lands that were not owned by an individual or a "recognized" institution. But, in reality, it ravaged 50 villages in its periphery in less than a decade. The construction of a storage tank for retaining the washing of iron ore costing ₹1 crore was dispensed with as nothing grave would happen to the tribal people. The result was the pollution of the river Shankini with iron fines for more than 50 miles polluting sources of drinking water and depriving a hundred villages of their only source of drinking water. No one even cared to know the fate of the "displaced" as they did not exist in the official records (Sharma, 2010, p. 21). The villagers are still burdened with the pollution of the iron ore fines, not only is drinking water a major issue, but agriculture also saturated with iron oxides is an equally big threat. Neither the central nor the state governments have been held responsible to rectify the harm done to the local farming. A related issue is that millions of tonnes of iron ore have been mined and utilized by the steel industry, but no effort has been made to rectify the colonial mischief and share the huge earning from mining with the people so that they can plan

and further their own development, rather than being "mendicants" craving the stray gifts offered occasionally by the industry, posing the question again and again – why make beggars of proud owners.

The fourth major issue impacting the human development of the Adivasis of Bastar is the massive influx of outsider non-tribal officials, workers, labourers, traders, entrepreneurs, service providers and hangers on into a pristine Adivasi area to work the mines. Outsiders poured in for all sorts of ventures in the growing townships around. Even the capture of Adivasi girls became a time pass for the migrants, both civil servants and other entrepreneurs (Sharma, 2003).[1]

The fifth issue in impending crisis of human development of the Adivasis is the influx of people from outside who indulge in concealed tenancy with marginal and small farmers leasing land on sharecropping basis. But as recording of leases is neither done at the panchayat level or by revenue officials, no record of actual land use exists. The landholder has no recourse to the revenue authorities or the courts for prosecution for non-payment of rent, refusal to pay rent, damage to the land and appurtenances or refusal to return the land, was not possible. The law was on the side of the outsider cultivator, the actual Adivasi owner has no protection, sub-terranean Adivasi land alienation was promoted by the state.[2] Once again the outsider holds the reins of power, the local Adivasi farmer is forced to remain a pliant subaltern. The Adivasis in south and north Chhattisgarh face this problem as more and more peasants from the northern riparian states of Punjab and Haryana, forced to mechanize or pay high wages for farm labour, rent out their own land at higher rates and move down to the Adivasi tracts of Chhattisgarh, where a "benevolent" state government follows a free market policy in renting in land, converting the Adivasi landowners into cheap labour on their own lands.

The sixth issue is the feverish mining activities (see NIRD Faculty, 2009) by both state and non-state players since Independence triggered by the vast mineral sources identified in the state. Land is being acquired by government for industry, mining, projects, roads, highways and housing complexes with cash compensation in most cases, but data is not available. The land acquisition process is done by the revenue department for government, public sector undertakings and private companies, the issue of sale and purchase following market trends is effectively bypassed. Hence, through the agency of the state a "state acquiesced if not state sponsored market 'restricted in purchase price' is being created to transfer lands of the agriculturists, who are largely unorganized and un-protected and whom the state is duty bound to protect". In most of the cases there is no role of the Gram Panchayat in land acquisition except giving acceptance. But for the acquisition process permission of Gram Panchayat is not mandatory. The compensation for land acquisition for industry, mining, irrigation, road/highway or any other was through cash only. There are no cases of compensation of type land to land and land plus cash type in the observation villages.

We are now examining the issue of tribal land alienation, which is the seventh, last but one in our examination of the land issues impacting the human development possibilities of the Adivasis of Chhattisgarh. Little or no information is available with the revenue authorities and the information and table that are presented here have been obtained by a faculty of the National Institute of Rural Development which was directed by the prime minister to prepare a report on the state of land reforms in the central Indian tribal areas to assist the government to locate the problem areas of land reform and the reasons for the same. Accordingly, the faculty obtained the data with great difficulty from the Chhattisgarh government. The period which the data refers to was not provided, but the presumption is from a period after the formation of the state on 1st November 2000.

This means a period of 15 years and the information provided therein is worrisome to say the least. But the title of the table gives an idea of how the functionaries and officials of the Chhattisgarh government are looking at the issue. The title of the table is "encroachment" and not "alienation". The meaning of the term "encroachment" would imply "entry and possession of the land in question by an alien person", which is limited to taking of possession. The term "alienation" would imply loss of possession and or title and would imply a change in the land records. The two terms would result in two courses of action, encroachment being limited to possession can only be identified by a physical survey of all lands and verification of possession by the title holder. Alienation can be identified from the land records, verification of mutation proceedings and may require an enquiry from the earlier title holder and if necessary, a verification of ground realities.

However, in this chapter, we are assuming that the cases mentioned herein are cases of land alienation. Table 7.3 refers to four cases which were heard and decided by the competent authorities. In the state there are about 47,993 tribal land alienation cases recorded. Out of these about 47,561 cases were heard and decided and 23,119 corresponding to 48.61% of the cases were decided in favour of STs. These cases covered 15,583.888 hectares of land. As many as 61 cases covering 116 hectares land are pending. About 432 cases were rejected in the state which account for 1,429 hectares of land.

The following observations of the faculty from NIRD, who did the study on Chhattisgarh for MoRD on the agrarian situation in Chhattisgarh are both insightful and informative.

- GPs/councils have no role in land distribution, maintenance of land records, removal of land encroachments except guiding revenue functionaries in land distribution but have powers for management of common properties for village use and leasing common properties like tanks.
- The GPs/councils do not record any tenancy nor do revenue functionaries.

Table 7.3 State of Land Reform in Central India

No	*District*	*Cases regd in current month*	*Total cases regd since the rule*	*Total cases settled*	*Cases settled current month*	*Total settled cases*	*Cases in favour of ST cases*	*Total possession given to ST*	*Possession not yet given*
1	Raipur	885	885	885	0	885	79	708.870	078
2	Mahasamund	666	666	666	0	666	087	559.093	087
3	Dhamtari	992	992	992	0	992	169	121.805	165
4	Durg	1,722	1,722	1,719	0	1,719	594	385.926	590
5	Rajnadgaon	3,071	3,071	3,068	0	3,068	3,069	2,635.300	3,067
6	Kabirdham	306	306	301	2	303	49	72.259	48
7	Bastar	849	849	843	1	844	584	1,429.000	584
8	Kanker	375	375	366	0	366	206	129.625	206
9	Dantewara	207	207	206	0	206	100	99.900	100
10	Bilaspur	0	0	0	0	0	0	0.000	0
11	Korba	142	142	142	0	142	46	40.650	46
12	Janjgir Chapa	4,795	4,798	4,773	1	4,774	1,765	949.305	1,763
13	Sarguja	4,542	4,542	4,540	1	4,541	2,112	647.971	2,112
14	Koriya	4,825	4,825	4,772	2	4,774	889	317.123	887
15	Raygarh	1,718	1,718	1,678	0	1,678	798	653.530	792
16	Jashpur	10,742	10,748	1,0505	2	10,507	5,476	1,768.614	5,472
17	Narayanpur	4,200	4,200	4,166	0	4,166	1,941	1,397.435	1,941
18	Bijapur	3,914	3,947	3,883	52	3,935	1,655	1,667.482	1,620
Total	**7951**	**7,993**	**7,500**	**2**	**7,561**	**3,119**	**5,583.888**	**3,058**	**5,536.811**

- Land along highways from district headquarters to major towns are kept fallow or for grazing. The reasons are income from agriculture is lower than wages in the NREGA.
- Farmland is used to dump industrial waste, resulting in loss of yield and damage to top soil.
- Medium and large farmers recognize livelihood needs of the poor and suggest distribution of government-cultivable wastelands.
- Large farmers and petty traders with more than 15 acres do not reside in villages and lease land to tenant farmers.
- Majority of non-tribal farmers find agriculture less remunerative due to high input costs, wage rates, depleting soil fertility and lack of irrigation.

The last and the most tenuous issue that has impacted the human development of the Adivasis in both north and south Chhattisgarh is the entry and consolidation of the Maoist groups Peoples' War in the south and Maoist Co-Ordination Center (MCC) in the north. The faculty of NIRD has observed that presence of the Peoples' War has definitely disturbed the status quo. For the local Gondi, the change has come at a very heavy cost. The Adivasis are caught in a pincer-like grip between the three forces, the Maoists, the Armed Forces and the vigilante force called the Salwa Judum (see Prabhu, 2009a). In the violence of the Salwa Judum, villages have been burnt, crops destroyed, crops and cattle looted, women raped and burnt alive, men beaten, killed or thrown into prison, triggering a large exodus of Adivasis of erstwhile Bastar district to Andhra Pradesh as Internally Displaced Persons (Prabhu, 2009b).

Jharkhand – Land and Its Place in the Human Development of the Tribal People

Jharkhand has a population of 32.96 million, consisting of 16.93 million men and 16.03 million women. Jharkhand is home to 28% Adivasis, 12% Dalits and 60% other social groups. Census data since 1881 has shown a gradual decline of tribal population in Jharkhand as against the gradual increase of non-tribal population in the region. The reasons given for this are immigration of non-tribal peoples in the region reducing the Adivasis to a minority, emigration of Adivasis rendered landless to other places in search of work, adverse effects of industrialization and urbanization in the region and low birth rate and high death rate among the tribes. Tribal leaders assert that they are still are a majority and a demographic force to reckon with. Jharkhand, a few centuries ago, was extensively covered with the dense sal jungle and relatively inaccessible. Most of the state lies on the Chota Nagpur Plateau, which is the source of Koel, Damodar, Brahmani, Kharkai, and Subarnarekha rivers, whose upper watersheds lie within Jharkhand. Much of the state is still covered by forest. But the discovery of its hidden mineral wealth has led to Jharkhand being converted as one

of the leading industrialized regions as mines, railways and roadways have multiplied, educational and technical institutions increased, principal towns become cosmopolitan even while the tribal people of the region have been deprived of their land and a process of indiscriminate exploitation has set in, creating racial, nutritional, cultural and socio-economic problems. It would not be erroneous to conclude that the state of Jharkhand is rich in natural resources, but its indigenous people are poor. The situation is grim considering 30 Adivasis tribes constitute 27.3% of Jharkhand's population while that of nine Particularly Vulnerable Tribal Groups (PVTG), who are still in the hunting-food gathering stage, represent 0.71% (TRI, 2003). The tribal people and their lands are inseparable like fish and water.

The Adivasis of Jharkhand have lived in the homelands for centuries. Community ownership can be traced back to the very beginning of their settlement in Chotanagpur, the Mundas in the first millennium BC followed by the Oraons in the beginning of the Christian era. Other Adivasi communities like the Kharias, Hos, Mahtos and Paharias came soon after. The traditional system of self-governance was based in the communal landownership and land could not be disposed without the agreement of all. Community ownership of land in Jharkhand can be traced back to the first millennium BC. These collective systems were called Patti by the Mundas, Parha by the Oraons, Munda Manki by the Hos, Mahanjhi Parganait by the Santhals and Doklo Sohor samithi by the Kharias (Ekka, 2014, p. 43). Community ownership was lost when the land regime was brought under the tutelage of one Adivasi chief called Phani Mukut Rai in the thirteenth century, who granted lands on perpetual tenures to officers of the military, administration and personal services as required by the infrastructure of the state. The loss of the land triggered a change in the mode of production and was co-terminus with the loss of politico-juridical rights invested in the village and loss of rights to functionaries from outside the lineage and the region. It changed to Jagirdari during Mughal rule when the tribal chieftain Durjan Sal gave land grants to non-Adivasi courtiers and officials. It was modified to the Zamindari system by the British in 1773. This forcible land alienation led to a series of tribal revolts beginning with the Tamar Revolt of 1779, the Kol Rebellion in 1819–20 and the Santhal Hul of 1856. A new district administration was introduced in Chotanagpur region embodying a non-regulation administrative system under a paternalistic agent Captain Wilkinson, who also framed the Wilkinson's Rule for the Hos in Singhbum and the Adivasi residents of the Kolhan (Thappa and Siddiqi, 2003). The British continued to find ways to contain the Adivasi uprisings extremely difficult following the appropriation of their lands by outsiders with the support of the colonial administration. In 1908, the British finally gave in by promulgating the Chotanagpur Tenancy Act that would protect Adivasi lands from going into the hands of outsiders. This was followed by the Santhal Parghanas Tenancy Act in similar vein. Besides the two acts, the architects of the Constitution brought the Adivasi territories of the central Indian tracts under the safeguards of

the Fifth Schedule to the Constitution which entrusted the responsibility and the power to ensure special protective rights of the Adivasis on their lands, culture, livelihoods and social relations (Ajitha, 2014, p. 17).

The Adivasi tenures originate from three specific legislations that were the response of the colonial state to the popular uprisings against uncontrolled looting of land by moneylenders and land sharks who entered the tribal tracts under the protective umbrella of the colonial dispensation. The Wilkinson's Rule (WR) of 1837, which addressed the growing unrest of the Ho people of Singhbum, the Chota Nagpur Tenancy Act (CNTA) of 1908, which sought to curb the growing unrest over land alienation of the *khudkattidari* and the *buinhari* lands of the Munda and Oraon people and the Santhal Parghana Tenancy Act (SPTA) to address the unrest of the Santhal people (Ekka, 2014, p. 36). Each law sought to use traditional community management arrangements, strengthen traditional chiefs and village community heads to stem the unrest and protect the common property of the Adivasi people, redistribute land if necessary (Ekka, 2003). The revisional survey of old Ranchi triggered new efforts of the Adivasis to retain community control over land and other natural resources and *khuntkatti* rights. Resistance of the Mundas and Mankis to the survey in Singbum and Kolhan in 1958 was effective in retaining customary rights and community tenures (Prasad, 1970). The legal framework of the Santhal Parghanas Tenancy Act still holds as it prevents the transfer rights unless expressly indicated in the RoR (Prasad, 1995, p. 30). But the Adivasi identity survived due to the emergence of new *khuntkattis* in the seventeenth century and the inability of the sanskritic culture to percolate to the rank and file. A combination of factors like the absence of large urban complexes, absence of major trade routes through the area, absence of commodity production of iron which remained a state monopoly (Thappa and Siddiqi, 2003).

In an agricultural economy, women and men work together to produce food for the family. In fact, women do the major share of agricultural work; they also collect various forest produce, which brings in cash income to the family. This gives them respect and independence in their societies, in other words a higher social status. But in a non-agricultural economy they get pushed from the role of producers to providers to that of beneficiaries. This definitely has a bearing on lowering a woman's status. The customary Adivasi inheritance system among the Adivasis of Jharkhand is patrilineal. However, the widow and unmarried daughters are maintained till the marriage/death of the former and the marriage of the latter (Ajitha, 2014).

Jharkhand has enormous wealth of mineral resources, most of which lies in areas where the Adivasis live. The first coal mine was started more than 200 years ago by the East India Company along the Damodar River. Jharkhand has a long history of mining that goes back over a thousand years. Indigenous communities like the Asurs and Agarias were well versed in smelting of iron. Prior to the advent of industrial mining, the Adivasis of Jharkhand were a self-reliant and proud people who did not work under

any master. For them labour was not a commodity for sale and they did not come from a cash economy. The companies had to use various tactics to break their spirit and make them work as unskilled wage labourers in the mines. Chotanagpur, which was opened for land sharks in 1854, disposed of the Adivasis' rights to the forest in 1856, following which the Chotanagpur Tenures Act in 1869 sought to regulate land alienation to quell the revolting tribal population but safeguarded the interests of the landlords through the Bhugut Bandha system. The Survey Settlement in 1861–80 aggravated land alienation as it gave legal right of the grabbed lands to the landlords and moneylenders.

The Census Reports of 1971, 1981 and 2001 indicate a declining trend of landholding from 4.67 hectares per household in 1971 to 3.05 hectares in 2001. Adivasi landholding has declined by 50% in districts of Dumka, Godda, Latehar, Ranchi, Lohardagga and Sahibganj, an important reason is the displacement of tribal people following land acquisition for development, mining, industry, dam construction and other public purposes. The post-Independence scenario is marked by a conspicuous paradox between policies and the functioning of the state with regard to tribal interests in the country. Behind the popular face is an insidious design, the senseless exploitation of natural wealth, both forests and minerals, the height of corruption and the bankruptcy of the public sector to ensure that tribal land is not demanded for any farsighted economic and social development but for making quick money. Adivasi areas rich in natural wealth have figured first in the priority list of the economic and political elites entering the area post-Indepedence, a phenomenon which is often described as an instance of functioning of "internal colonialism" elaborated in greater detail by Furer-Haimandorf when he observes that the massive invasion of tribal land by outsiders occurred after 1947 (Furer-Haimandorf, 1982, p. 39). The Tatas set up their steel works in 1907, the coal and the iron mines were started in the homelands of the Santhal and the Ho people. With industrialization, while a few were relocated in new areas, hundreds of Adivasi villages disappeared without a trace.

Displacement has far-reaching consequences on the lives of closely-knit communities like Adivasis and Dalits. Displacement disintegrates the village community. The close-knit village communities with their common culture, traditions, values and kinship bonds get scattered in the process of relocation, which leads to distortion and destruction of their whole value system and culture. Along with the houses and the fields, the sacred groves of the village which are the abodes of the spirits who protect the village also get destroyed or relocated. This is indeed a very traumatic experience for the people, the spiritual base of their lives is wrecked. In the process, they lose not only their sense of self-esteem and self-worth but also their very bearings which define their identity as a people.

The workload of the women also increases with mining, displacement and relocation. Water tables go down, volumes decrease, drinking water

becomes scarce or polluted, diseases abound, bathing water moves further away from the village, risks to young women increase with the changed conditions. There is a direct correlation between increase in alcoholism in indigenous communities, particularly the men, and mining. Increased cash flow, abrupt change in lifestyles and breakdown of life cycles that were productive of material and non-material culture all contribute to the growth and dispersal of alcoholism, particularly among the males; with the attendant increased in the extent and intensity of violence against women (Ajitha, 2014, p. 60).

Chotanagpur already had been opened up for land sharks in 1854, the Adivasis rights to the forest were disposed of in 1856. Development-induced displacement has alienated 30 lakh acres of Adivasi land from 1951, aggravated by globalization in 1991. The process of tribal land alienation has been going on rampantly and much more fiercely than ever before. And the players in land alienation include the state, including the political leadership, ministers, bureaucrats and the judiciary, the non-tribal upper class as well as the upper class tribals, industrialist and development agents (Ekka, 2014, p. 96). The Jharkhand government's Industrial Policy of 2001 identified mining as the most important thrust area for focussed industrial development. The government is going all out to woo investors into the mining sector, by relaxing rules and making procedures easy. Till date, the state government has signed MoUs with 105 companies for mega investment in the state. The Union Government adopted a new National Mineral Policy in 2008 with a view to usher in an era of unfettered exploration of the country's mineral resources and provide employment to over five lakhs skilled and unskilled workers by 2011, with a goal of raising revenue to ₹20,000 crores. According to officials, the new policy also aimed to promote the welfare of the communities living in mining areas by introducing a sustainable development framework. Mining companies were required to spend a percentage of their profits on social infrastructure and grant stakeholder rights to the project-affected people (Frontline, 2008, pp. 102–107).

The impact of mining on the economic, social, cultural and traditional lives of the Adivasis has been devastating and there is strong resistance in many areas where mining companies are starting new mines and setting up plants. The villagers are vociferously declaring that they are not prepared to give up their lands. In many areas, they are showing their anger and dissent by disallowing public hearings to be held. As a result, though MoUs have been signed by the state government with various companies since 2002, none of the projects could start so far due to continuous dissent.

The total value of minerals mined in India in 2001–02 was to the tune of ₹59,509 crores of which Jharkhand itself contributed ₹4,997 crores. The area covered under leases for mining in the year 2002–03 was 23,14,739 hectares, a full 29% of the total area of Jharkhand which stands at 79,71,400 hectares. The new Mining Policy of 2008 removed all the sanctions that also acted as safeguards for the Adivasi homelands and its people. The policy

facilitated a rush of resource grabbers in the garb of investors eager to make quick profits. This resulted in a manifold increase in competition, corruption and insensitive loot of minerals. Massive deforestation went hand in hand with displacement of local Adivasis from their lands, both of which combined to destroy the traditional livelihoods of the people. Cash inflow into the villages cornered by a few has destroyed the homogeneous and egalitarian base of the villages.

Three acts have governed the acquisition of land for mining for decades; the Land Acquisition Act of 1894, The Coal Bearing (Acquisition and Development) Act 1957 and the Atomic Energy Act 1964 in Jharkhand, the latter two being modelled on the colonial law of 1894. A major threat of all three acts is forceful acquisition. None of these acts consider the damage that is caused to close-knit indigenous communities whose existence is closely linked to land and forest. None of these acts provide actual space for dissent, dialogue or negotiations between the government, the companies and the affected communities. To confound matters, there is a total lack of information sharing with the people who will be displaced or affected by any mining project, whatever the mineral to be mined, the character of the company whether big or small, private or public sector. None consider it a responsibility to inform the project-affected persons and prepare them for the eventuality of displacement and the challenge of new livelihoods.

In Jharkhand, as discussed earlier, two acts namely the Chotanagpur Tenancy Act, 1908 and Santhal Parganas Tenancy Act, 1949 are in vogue to safeguard the rights and interests of ST *raiyats* in land. Under Sections 46 and 47 of Chotanagpur Tenancy Act, there is restriction on the alienation or transfer of land by ST *raiyats*. In this respect, deputy commissioners of the state are vested with the power to restore illegally transferred land belonging to STs. Likewise, under Section 20 of the Santhal Pargana Tenancy Act, no ST *raiyat* can alienate his/her right in land through sale, gift, lease or mortgage except in certain special cases. Under C.N.T. Act 1908, two posts of SAR officers have been sanctioned, one each in Ranchi and Latehar districts to restore illegally transferred land of ST *raiyats*. Whereas an officer has been posted in Ranchi district as SAR, the post of SAR lies vacant in Latehar district. Besides, subdivisional officers in the districts enjoy this power by virtue of their post. Additionally, through government notifications, many officers in the districts have been vested with this power under Section 71 A of Chotanagpur Tenancy Act. Till January 2007–08, 4,087 cases of illegally transferred tribal land measuring an area of 4,032.06 acres have been registered in the state. Out of these, 943 cases stand disposed in this period. Again, in the same period, 171 cases measuring an area 178.30 acres, possession has been restored to the Adivasi *raiyats*, whereas 3,144 cases are still pending with various courts in the districts. Deputy commissioners of the state have been directed to speed up early disposal of such cases, while legal aids were extended to 4,642 households and financial support to 2,901 households.

Till January 2007–08, a total of 30,089 cases of illegally transferred tribal land measuring an area of 21,082.83 acres have been registered in the state. Out of these, 6,872 cases stand rejected in this period. Again, in the same period, in 2,208 cases covering an area of 1839.59 acres, possession has been restored to the Adivasi *raiyats* and a further 5,463 cases covering an area of 4267.765 acres have been adjudicated in the favour of the Adivasi, whereas 16,546 cases are still pending with various courts in the districts, which means that half the number of cases of land alienation have been languishing in the courts for the past seven years with no efficacious interim remedy for the Adivasi who has been divested of his livelihood means. Deputy commissioners of the state have been directed to speed up early disposal of such cases.

Land and Tribal Human Development in Madhya Pradesh

As per the 2001 census, Madhya Pradesh's total population stands at 6.03 crores with over one-third of its people belonging to the deprived communities, namely STs at 19.94% and 15.4% from the SCs. The state is home to 46 recognized Scheduled Tribes and three Particularly Vulnerable Tribal Groups. Reserved forests are spread over 86,98,529 hectares of the state, constituting 28% of its land mass and 12.44% of the nation's forest area. Madhya Pradesh is home to several National Parks, including Bandhavgarh National Park, Kanha National Park and others. Ironically, the state has no community forests and makes no mention of common lands or protected forests.

Mandla Block, with a total area of 9.65 lakh hectares and a population of 8.94 lakhs of which 57% are Adivasis, was considered the Gond homeland, which stretched from Jabalpur in the north to Adilabad block in Andhra Pradesh in the south and covered Madhya Pradesh, Chhattisgarh, West Orissa, North East Maharashtra, and North West Andhra in one sweep which formed the central tribal homeland. To the west of Gondwana was the Bhil tribal tract stretching from Bhilwada in central Rajasthan to mid-coastal Maharashtra. To the east of the Gond homelands were the homelands of several Austric and Proto Austroloid tribes from Jharkand in the north to Andhra in the south. Their homelands are thickly forested and today hold the mineral wealth of the nation. The three homelands were also in ferment right over colonial land appropriation and imposition of an alien land management system over the community-owned individual family accessed system of the land across the country. The colonial period was rocked by Adivasi uprisings with the Bastar Gond Uprising in 1779, marking the beginning of revolts against the British regime. Mandla is situated in the east-central part of Madhya Pradesh and is in the catchment of Narmada and its tributaries. 60% of its land mass is covered with thick forests of which 93% is reserve forest with neither community, nor private forest. The fact that approximately 56% of the agricultural holdings in Madhya

Pradesh are marginal holdings, of less than one hectare, covering only 16% of the cultivated area is a reflection both of in-migration from northern areas, alienation of tribal lands with the connivance of the revenue administration, both during the colonial and post-colonial period. It is of value to observe that on the other end of the scale, large holdings of 10 hectares or more accounted for 4.9% of the total holdings and over 28% of the total area. In Mandla district itself, 67% of operational holdings are small and marginal and their share of operated area is hardly 33%, indicating the extent of inequity foisted on the erstwhile rulers of Gondwana.

The Madhya Pradesh Land Revenue Code 1954 is the main law that governs land at present. The code presumes land is utilized by the title-holder, hence if a sharecropper tills (utilizes) the land for two of three years, s/he is entitled to become an equal owner and subsequently the actual owner. A category of cccupancy tenant was created as part of the strategy of eliminating pre-existing feudal tenancy arrangements and giving secure rights to the actual cultivators of land. Notwithstanding the lofty ideals of the code, its provisions ironically promote concealed tenancy and eviction of sharecroppers or rotation of them or tenants to ensure two-thirds years of ownership and strengthened the power and "patronage" of the patwari as the de facto ruler of the villages under his supervision. Hence, a new land management act (Madhya Pradesh Bhoomi Prabandhan Vidheyak, 1999) is under consideration which aims to give legal recognition to the *Bataidar* (sharecropper) in place of the present practice of treating the tenant as a domestic servant, once again with the cooperation of the revenue functionaries, a prelude to eviction and the growing political price of the patwari. The government has no record of legal tenants and nor are related cases registered or records maintained either by the revenue or agriculture department (NIRD Faculty, 2009).

In practice, such annual maintenance of ownership and sharecropper information has been neglected, a condition attributed to the otherwise heavy workload of the patwari (see Table 7.4). In practice, patwaris never record sharecropping agreements as the cultivating tenant is, in all likelihood, a Dalit or Adivasi landless or marginal farmer, desperate to make a living and the owners object to the publicity since under the revenue code, sharecroppers can gain occupancy rights after three years. As per the FAO report, problems in maintenance of land records can arise from the heavy workload of patwaris given that they perform several functions at the village level (e.g. providing certificates of domicile), which takes an estimated 30–40% of their time, and also have a large geographical area within their jurisdiction, and of course the poor are the last priority.

The Madhya Pradesh Ceiling on Agricultural Holdings Act, 1960 stipulated that a person cannot have more than 10.12 standard hectares of land. Frustration with implementation of the 1960 Act due to loopholes and litigation, only a small portion of the estimated surplus was acquired, hence a revision was enacted in 1974. The Madhya Pradesh Ceiling on Agricultural Holdings Act, 1974, included a tighter definition of "family".

Table 7.4 Recording of Tenancy as Per Agricultural Census (Figures in lakhs)

Year	*SC*		*ST*		*Others*		*Total*	
	Number	*Area*	*Number*	*Area*	*Number*	*Area*	*Number*	*Area*
1991	1,055	1,796	2,072	5,564	5,274	14,751	8,401	22,111
2001	910	1,354	1,503	3,243	4,947	11,775	7,360	16,372
2007	No data							

Table 7.5 Distribution of Ceiling Surplus Land in Madhya Pradesh to STs[3]

	Up to1991	*Up to 2001*	*Up to 2007–08*
Number	NA	18,383	18,308
Area (ha.)	19,509	20,771	20,226

According to statistics reported in 1995, the total area of land declared surplus at that time was 1,36,968 hectares (see also Table 7.5). Of the total, the state had taken possession of 1,19,661 hectares or approximately 87% of the declared surplus. About 74,941 hectares, that is 63% of the land taken into possession had been allotted to beneficiaries, which works out to 55% of the total surplus land. A study conducted by the Land Reform Unit of Lal Bahadur Shastri National Academy of Administration concluded that implementation of land ceilings legislation had some benefits but multiple deficiencies to thwart implementation, including low declaration of ceiling surplus, benami transfers, declaration of fake occupancy tenants, incorrect classification of land, poor quality of allocated land, incomplete, inaccurate or missing land records, litigation and bureaucratic lethargy and most importantly beneficiary inability to take or retain physical possession of allotted land due to intimidation by large landholders. Hence, according to information gathered by the probationers, the area acquired was 2,21,183.82 acres of which only 1,29,919.54 acres were distributed to a total of 45,331 beneficiaries of which only 17,379 were ST beneficiaries and the area allotted to them was 38,097.57 acres, just about 15%.

The Bhoodan Yojna started in 1951, and the process to acquire and redistribute the land had begun but there was no legal provision till 1955. In 1955, four boards were formed for four regions. These were merged in 1967 and brought under one act named M.P. Bhoodan Yojna Act. As per the information provided by the SLR, 9,584 ST families received 66,713 acres (Table 7.6). The condition of the land however could not be verified.[4]

Bhoodan land was completely distributed by 1991 and no Bhoodan land was distributed later. About 28,137 beneficiaries were benefitted by Bhoodan land distribution. In the village survey, none of the households has reported the benefit of Bhoodan land. Bhoodan beneficiary farmers told the faculty conducting the field verification that the land, supposedly assigned

Table 7.6 Distribution of Bhoodan Lands in Madhya Pradesh to STs

Period	*Upto 2007–08*
Total land acquired under Bhoodan (ha.)	1,72,116.76 acres
Total land distributed (ha.)	1,40,694.50 acres
Area unfit for distribution	24,423.24 acres
Remaining area for distribution	6,999.20 acres
Total number of beneficiaries	28,137
Number of ST beneficiaries	9,584
Area distributed to ST beneficiaries	66,713 acres

Table 7.7 Distribution of Wastelands in Madhya Pradesh to STs (Land Reforms Unit, 1994)

	Upto 2002	*Upto 2007–08 /latest*
Total land distributed (ha.)	23,971	1,97,775
Total number of beneficiaries	2,62,740	2,43,412
STs – number		90,948
Area distributed (ha.)		4,181

to them as Bhoodan land, was the same land that had been passed onto them by their ancestors (NIRD Faculty, 2009), raising the persistent doubt that the ground realities do not mirror the records and vice versa. However, concerned local officials informed that they weren't sure whether the land was distributed to the beneficiaries either through Bhoodan or surplus land distribution scheme.

Which brings us to one more land distribution scheme of the Madhya Pradesh government that is "re-distribution" of the common lands of the village to individuals with a new nomenclature of waste lands. About 2,62,740 landless or marginal farmers were the beneficiaries of this redistribution programme (Table 7.7). If the lands were redistributed to individual villagers, then how is the community to meet the wide range of needs that are provided by the common lands; grazing cattle, collection of scrub for firewood, providing fodder, playgrounds for children, open space for functions and the like? What is the community's reaction when they learn that the distribution was a different way of regularization of lands that are already encroached without the agreement of the community or panchayat? Although land has been distributed among 2.87 lakh beneficiaries, there are still are 4.23 lakh landless persons in Madhya Pradesh.

The vexed issue of tribal land alienation remains to be examined. The state government has taken effective steps to ensure the land belonging to tribal is not transferred to non-tribals. Suitable provisions were made in

Sections 165(6), 170-A and 170-B of the MP Land Revenue Code to eliminate such practices. These sections provide that tribals cannot transfer or otherwise alienate their land to a non-tribal in notified areas where tribes live predominantly. In non-notified areas such transfers cannot be affected without the specific permission of the collector. No land belonging to a tribal can be attached or sold in execution of any decree of a court (sec.165). Section170-A provides that the SDO, suo-moto or on the basis of an application by a tribal transferee before 31.12.78, can enquire into the propriety of alienation which took place between 2.10.59 and 29.11.76, and can restore the land to the tribal if satisfied. Section 170-B authorizes the SDO to cancel a land transfer of a tribal if obtained by fraud between 2nd October 1959 and 23rd October 1980 on an application. The SDO shall ask the transferee as to how he came to possess the land, failing which the SDO shall order immediate restoration of the land to the tribal. Sections 170-C and 170-D were introduced in 1984 for Scheduled Areas. Section 170-C discourages appearance of advocate in proceedings of Section170-A or 170-B.

If permission is given to engage an advocate, similar assistance shall be provided to the tribal free of cost through legal aid. Under Section 170-D second appeal is barred against orders passed under Sections 170-A and 170-B. Table 7.8 provides some information on progress under Sections 170-A and 170-B.

Upto 31st May 2002, 20,521 hectares have been restored at least in the records to 14,460 Adivasi farmers. No records are available of physical restoration of the land, and it would make ample sense to verify what is the condition of the beneficiary and the restored lands. What is the role of the Gram Panchayat in ensuring physical handing over of the lands by the landlord and developing systems to prevent the restored lands from reverting back to the landlord or large farmer who alienated those lands in the first place? Unless the physical surrender of the land to the Adivasi farmer is also part of the restoration strategy and possible criminal action is provided for if those lands are once again alienated, restoration of land will remain a mirage.

No records are available for the cases after 2002 to till date. The latest information on tribal land alienation presented in Table 7.9 indicates that out of 13,909 cases, overall, about 11,913 cases were cleared, of which 6,842 cases were decided in favour of STs.

Table 7.8 Progress Under Sections 170-A and 170-B

Section 170-A	*Particular no. of cases*	*Reg. cases*	*Disposed cases*	*Remaining cases*
		7,254	7,206	48
Person	8,008	7,960	48	

Table 7.9 Tribal Land Alienation in Madhya Pradesh[5]

Total cases/Area involved		*Cases decided*				*Decided in favour of STs*	
Number	*Area (ha.)*	*Number*	*Area (ha.)*	*Number*	*Area (ha.)*	*Number*	*Area (ha.)*
13,909	8,701	11,913	8,054	6,842	8,695	13,909	8,701

Source: (NIRD Faculty, 2009).

There is ambiguity regarding the area involved and when and how the actual transfer of possession takes place on the land, how the dispossessed Adivasi farmer will undertake cultivation when for close to a generation, most of the Adivasis, who have been divested of their lands have had to spend their days as footloose labour, at times during the monsoon working on the lands of other farmers or even on his own lands in the possession of the landlord. Furthermore, where would the Adivasi obtain the draught cattle to plough the lands and the food to sustain the family working on the land? The constant risk of surrendering the land back to the landlord remained. Hence, we see repeated relapse in restoration cases in the absence of a system of internal solidarity in the community which would help the family tide over the planting or transplanting period. Therefore, the Madhya Pradesh Ceiling on Agricultural Holdings Act, 1960 had to be replaced by The Madhya Pradesh Ceiling on Agricultural Holdings Act, 1974 to incorporate corrective measures and close loopholes that allowed the landed gentry to escape the ceiling surplus net with impunity or introduce Sections 165(6), 170-A and 170-B of the MP Land Revenue Code to close the escape hatch that allowed persons in possession of alienated Adivasi land to escape restoration with immunity.

Status of Tribal Human Development in Odisha

Odisha claims to be one of the fast-growing states in India, being richly endowed with forests, metals and minerals, lakes and a lengthy coastline. Odisha's geographical area is 1,55,71,000 hectares, while the area under forest is 5,81,300 hectares, 26,32,912 hectares is reserved forests and 11,68,708 hectares of community forest, 2,05,500 hectares is private forest, and land under miscellaneous tree groves is about 3,42,000 hectares. The net sown area is about 56,54,000 hectares, gross irrigated area is 31,49,450 hectares and non-agricultural land is 12,98,000 hectares. Uncultivable barren land is 8,40,000 hectares, 4,94,000 hectares is permanent pasture and grazing land. About 90% of Odisha's poor live in rural areas and are dependent on land for livelihood. Odisha's poverty is irretrievably linked to the failure of the state to empower the poor to access and protect their land and natural resources, against the threats posed by poor land tenure security, restricted

legal access to common property resources and intense pressure of the mining and industrial lobbies. The Forest Enquiry Committee Report of 1959 mentioned that 12,000 square miles roughly corresponding to 3,07,20,000 hectares of land in Odisha is under shifting cultivation (GoO, 1959).

More than 700 villages largely occupied by the PVTG still exist inside sanctuaries. Additionally, a large number of unsurveyed villages exist in the sanctuaries but are treated as encroachments. This has been a cause for conflict and continuous threats of eviction have led to the impoverishment of the Adivasi people living inside these areas (Kumar et al., 2014, p. 45). Adivasis follow a clan-based land tenure system, where land is held by the clan and administered by the clan elders and which includes customary rights on land, trees, forests and the like. Most tribes follow swidden cultivation in the hills and cultivate paddy in the valleys which are terraced by them.

A large number of Adivasis broadly have four cultivation patterns, wetlands and lowlands in the river valleys where the crops are generally long-term paddy varieties, bunded fields in stream beds where the crop is generally mid-term to short-term paddy varieties, homestead lands/backyards where the crops are seasonal vegetables and fruits and uplands where the cropping pattern is swidden or shifting cultivation of multiple grain and pulse varieties, leaving the land to recover for a few years after each crop (Kumar et al., 2010).

The traditional land use patterns of the Adivasis were ignored by both the colonial and post-colonial state, which without notice to or knowledge of the clan elders or the community, arbitrarily settled large tracts of customarily owned, cultivated and claimed lands as state-owned property. Thus, in the Scheduled Areas, 74% of the land is categorized as state land of which 48% is recorded as forest land and 26% is recorded as non-forest land. As a result, three-fourths of the land have been conferred by state government settlement officers on the state government, while the actual cultivators and owners were tribals who have been rendered landless or marginal farmers, eking out a hand-to-mouth subsistence-based survival (Kumar et al., 2014, p. 6). The most important feature in the alienation of lands of the STs has been the non-recognition of rights on cultivation lands with an argument that the said lands are not in continuous occupation by the concerned cultivator for 12 years, knowing fully well that the fields have to be given time to rest and recuperate their fertility, depending on the soil types and the recovery of the undergrowth. Theft of the corpus of tribal land was justified by revenue administrators with unscientific and illogical arguments (Behuria, 1965). The Government of Odisha had to deal with a wide diversity in the revenue administrative systems practised pre-Independence. The Revenue System of the Bengal Presidency covered the northern part of the state; the Revenue System of Madras was extended over the southern part of the state; the System of the Central Provinces and Berar prevailed across the western part of the state; and the 24 princely states had their own revenue systems. In addition, the Partially Excluded Areas had separate land settlement and

revenue regulations. There was no attempt to rationalize all these systems in the state.

Hence the state, through its functionaries, did not formalize the ownership of land occupied by the Adivasis for agriculture in the tribal areas through the survey and settlement process; actually, the process disinherited them. Clan- and lineage-based territories of the Adivasis and swidden land among the particularly vulnerable tribes like Juangs which had their ancestral territories in Kendujar (Keonjar) district marked out and mapped during the royal regime and recognized during the British rule (Rath, 2005) were derecognized by the settlement officers, notwithstanding that the village elders produced documentary evidence of their ownership and cultivation of those lands, which were in the name of the Juangs' Mother Goddess. The same lands which are part of the Juang Pedo are now being mined by multiple mining companies and groups (both legal and illegal) for rich iron ore, which till recently was shipped to Japan. The Juangs, driven out of the lands with the pollution caused by the thousands of trucks passing through their homelands, die from chronic starvation and consequent malnutrition. A similar process took place with yet another particularly vulnerable tribal group, the Khutia Khondos, whose entitlements were totally ignored by the revenue functionaries and officials and such areas were identified as government land (Padel, 1995, p. 5). The extensive study done by Viegas on the repercussions of the conscious and deliberate suppression of the tribal communities involved in swidden agriculture shows that the Adivasi farmers lost almost 56% of their land of which 40% was due to indebtedness following the dispossession of their swidden lands by the state (Viegas, 1991).

If the persistent problems of land are not enough, development projects are estimated to have displaced 15 lakh people between 1951 and 1995, of whom 42% are Adivasis. Less than 25% of the displaced Adivasis have never been settled even partially. Except for a few irrigation projects, development projects have not provided land as rehabilitation even when the principle of land for land was accepted. A study of seven development projects with a sample of 301 households shows that legal landlessness increased from 15.6% to 58.8% after displacement (Pandey, 1998). In a study on the Upper Indravati Project, post-displacement landlessness increased to 85.25%, legal landholding declined to 0.62 hectares and average government land cultivated stood at 0.2 acres (Ota, 2001). These figures cover those lands to which the displaced Adivasis had land titles; they did not cover lands to which the state functionaries had not recognized title of the Adivasis as they were clan lands or swidden lands and therefore recorded as government lands or common grazing lands which were not recorded at all. The unfortunate state of affairs, where the legitimate land rights of the Adivasis are not recorded by the state, allows development to be built on the lifeless bodies of Adivasis reduced to penury by repeated illegality and unrecognized lawlessness of the government functionaries. All these large tracts of land across the state which have been recorded as government lands in the surveys and

settlements have not been done innocently or negligently but have been done with a purpose, making it amply suitable for the Odisha government to hand over these lands to the mining industry. The classical case is that of the Niyamgiri Hills which are being sought for bauxite mining by Vedanta. But for the Supreme Court's intervention and the steadfast determination of the Dongriya Khonds against all odds, threats, bribery and perceptible state terror which could be felt by the people across the hills but impervious to the uninitiated visitor, whether from the media or well-wishers. Negative stereotypes about Adivasis from the colonial period have been propagated in the Indian elite's ideas of assimilationism to produce a disdain for Adivasi culture that is almost universal among the non-tribals who live near the Adivasis and have power over them (Padel, 1995). The lack of rights to land resulting from both state-sponsored and state-acquiesced failure to record rights has led to extortion for each and every "criminalized" activity necessary for human survival (Padel, ibid.).

Land reform legislation had limited success due to weak revenue administration and lack of updated land records. Provisions of different acts were challenged in the courts because of legal deficiencies, which require further amendments to the original acts and have delayed their implementation, virtually indefinitely. Abolition of intermediaries, achieved relatively easily in other states, was not completed in Odisha until 1974 due to non-availability of reliable records. Finally, a "blanket notification" was issued by administrative fiat. But more than 6,000 cases relating to abolition of intermediaries are still pending in the Odisha High Court with no likelihood of quick disposal. The legislative ban on leasing has led to concealed informal tenancy arrangements with shorter spans and less security than prior reform (Jena, 2010).

Tribal Land Alienation

Following the requirements of the Odisha Schedule Areas Transfer of Immovable Property Regulation-2 of 1956 and its amendment in 2002 and the Regulation of Transfer of Tribal Lands 1964 as amended, "Transfer of immovable property of an illegal occupant of tribal land" has to be mandatorily initiated on the report of Gram Panchayat with concurrence of Gram Sabha. The Gram Panchayat when seized of the factum of land alienation can restore such land. However, Civil Courts are directing restoration even of land alienated by non-tribals long before as per the new Act and Rules. As many as 1,07,736 cases of tribal land alienation involving an area of 43,094.88 hectares were booked by 2008, based on the report of the last survey and settlement done in 1964. But in other areas settlement was done in the year 1927–28.

About 99% cases were decided of which 58% cases were in favour of scheduled tribes, but whether the order has resulted in physical restoration of the land remains unclear. Further no records exist of any spoken orders

Table 7.10 Tribal Land Alienation in Odisha (Till 2008)

Total cases/area involved		*Cases decided*		*Decided in favour of STs*	
Number	*Area (ha.)*	*Number*	*Area (ha.)*	*Number*	*Area (ha.)*
107736	43,094.8842	1,06,796 (99.12%)	42,657.8882 (99.98%)	62,842 (58.32%)	23,382.7566 (54.25%)

given by the courts rejecting the claim for restoration in 42.68% of the cases. An issue raised by tribal leaders is the judgement of the Andhra High Court in the Samatha case cited earlier (High Court of Andhra Pradesh, 1997).

Land and Human Development of the Adivasis of Rajasthan

The state of Rajasthan comprises an area of 3,42,240 square kilometres with boundaries of Haryana, Punjab, Delhi, Gujarat, Uttar Pradesh, Madhya Pradesh and Pakistan and is the largest state in India. As many as 41,353 revenue villages are spread over 33 districts. As per Census of 2011, the population of the state was 6,85,48,437 persons with 17.83% SCs and 12.6% Adivasis. The Adivasis of Rajasthan are amongst the original people of what is now India. Before the Rajput deposed them, the Bhil Chieftains were the rulers, the Bhil-Meenas in the northern and eastern regions and different sub-clans of Bhils in the southern tracts. Rajputs appropriated the Bhil kingdoms through threat, force and guile and used the Adivasis with their war skills to protect their own kingdoms (Chadana, Bhanwar Singh, et al., 2014 p. 23). For the Adivasis of Rajasthan, living in harmony with their environment, both emotionally and socially, land was co-terminus with forests, their religion and the source of their music, dance, rituals, magic, myths and legends which are intractably woven into everyday life (ibid. p. 96).

The British in the process of bringing the Adivasi areas under their authority also reframed the relationship between the non-Adivasi and Adivasi, relegating Adivasis to a subordinate position. The loss of control over their ancestral domain, initially to the British and later to the Indian state, allowed non-tribals to prosper at the cost of the Bhil people, but right through the colonial period the Adivasis revolted repeatedly on the issue of land sovereignty.

The Bhil Revolts lasted for nearly a century and half from 1818, starting against British collaboration with their feudal rulers and the opening of their area to revenue officials, moneylenders, land grabbers, traders and shopkeepers who infiltrated and surreptitiously looted their villages and caused immense suffering. The Udaipur Bhils revolted to protect their cherished freedom and their striking force was partially successful, till they were brutally put down by the army by 1860. The Mer Bhils raised their swords in revolt against oppressive extractions and to put an end to their subjugation

to the British. They were crushed three years later by a joint force of British, Rajputs, Mughals and Marathas, in a manner similar to the Mangarh slaughter in 1881. In 1872, the Banswara Bhils revolted against moneylenders and their practices of taking female sex slaves called "londi" and male slaves as "gulams". Already distressed by the famines of 1868–75, the people found compatriots with the Bhils of Gujarat who were also in revolt since 1868. The Mangarh revolt led by Govindgiri, began as a religious reform movement but metamorphosed into economic-politico movement during the great famine of 1899 and posed a threat to both the British and the Rajputs. The Adivasis were put down in a brutal slaughter of 1,500 Bhil warriors by the British at Mangarh in 1923 (Chadana et al., 2014, pp. 35–43).

Post-Independence, the Adivasis of Rajasthan were bypassed by the major agenda of nation building, as neither tillers nor forest dwellers and through gross historical injustice condemned to become footloose labour (GoI, 2004, p. 22). Moneylenders still give loans to the Adivasis for agricultural and religious ceremonies at 36% interest per annum, the administration never interferes. Next, they would forcibly occupy agricultural land with the protection of the police and sublet the land to others to cultivate. As a result, the Adivasi debtor loses both lands and livelihood. Similarly, the tribal welfare departments, cooperatives and nationalized banks give loans to tribals against land and on their failure to repay, land is auctioned and as per government policy, even non-tribals can purchase the land. A new carefully engineered exercise has been started by the better-off Adivasis. As access to loans for Adivasis is liberal and strict procedural requirements are overlooked, these smart tribals get willing tribals to take loans, default on them, manage auctions and pay for secure transfer of tribal land to non-tribals without breaking any law, of course with a hefty commission. In dam projects, while submergence of land in major and minor dams is inevitable, the government never follows a proper rehabilitation policy and the dam displaced – but never rehabilitated – join the ranks of footloose labour (Chadana et al., 2014, p. 49). When the dam on the Mahi River was constructed, the Adivasis of South Rajasthan were rehabilitated in such inhospitable areas where even drinking water was unavailable, converting them into permanent migrants to Ahmedabad, living in open parks and providing cheap trustworthy domestic labour with no possibility of recovering their future for the past 40 years.

The MoUs are the next safe method to obtain tribal land without any constraints or limit on acreage. About 12,25,000 hectares have been allotted for SEZs; 50,00,000 hectares for Jatropha plantation. MoUs have been signed for education, health, tourism and contract farming due to which thousands of Adivasis and Dalits face imminent displacement. The state government seeks to make amendments in laws which will allow conversion of tribal land into non-tribal land, to bring more tribal land into the land market. Additionally, tribal land alienation and conversion for commercial

and residential purposes in urban and semi-urban areas has emerged as one of the major causes for alienation. About a third of such lands are in violation of 42B of the Rajasthan Tenancy Act and Registration Act, but the proceedings are off the record, the state of land records contributes to manipulation, benami transfers, leasing or grossly delayed mutations. Conversion of all genuine protest of the victims into law-and-order problems and lodging of FIRs against the victims of fraud, purchase of tribal land by tribal agents on behalf of non-tribal purchasers, transfer of possession without change in title are all matter of admitted fact. The recent amendment of Section 90 of the Land Act is the greatest contributor to tribal land alienation. The number of Adivasis displaced for development projects is reported at 85.39 lakhs, 55.16% of the displaced are yet to be rehabilitated (Fernandes, forthcoming).

The Jagirdari and Biswedari systems which prevailed in the state before Independence were the cause for the abysmal living conditions of SCs and STs. The Rajasthan Protection of Tenancy Ordinance 1949 was promulgated to save people from coercive realization of land revenue and to protect tenants against the illegal ejection. It remained at best a dead letter. Once again, the Rajasthan Agriculture Rents Control Act, 1952 was promulgated to curb the system of the exorbitant imposition of land revenue as the earlier law failed for want of administrative will to enforce compliance. Zamindari and Biswedari were abolished and rights over land were confirmed to the farmers by Rajasthan Tenancy Act 1955. More than half a million tenants got rights over 30 lakhs acres of land on paying compensation to landlords. Though the Rajasthan Land Revenue Rules Act 1970 provided for land allotment to a wide section of other "deprived" and landless SCs and STs, the non-SC/ST were the largest beneficiaries. The Rajasthan Tenancy Act of 1974 which tilted in favour of the tenants was adopted to address the need of maintaining a record of sharecroppers or tenants, but this law also remained limited to the corridors of power. Rajasthan Ceiling Acts were enacted in 1963, which suffered non-compliance like many other earlier legislations so the government adopted the "Rajasthan Imposition of Ceiling on Agricultural Holdings" Act in 1973 to ensure implementation of earlier ceiling laws and finally the Acquisition and Distribution of Ceiling Surplus Land 1990. As many as 2,08,126 cases are pending before different levels of officers such as district collectors, additional district collectors, sub divisional magistrates, assistant collectors, revenue appeal officers and settlement officers in the state as on 1st October 2005.[6] No law would be implemented unless it found acceptance of the land elites and a pliant revenue administration. So inefficacious legislations piled up on the tables of legislators and administrators, but the proportion of SC and ST beneficiaries remained 14.28% and 8.32% with small parcels of land. Analysis of data shows that "others" category of beneficiaries including industry received more land than all the SCs and STs in the last five years from 1995–2000 (Sivaram, 2009).

Surplus land acquired by the revenue department has been allotted to the landless poor farmers, the only condition being the poor farmers are working with the landlords. In most cases, land assignees did not know that lands are assigned to them. In other cases, fertile land is allotted to the poor, but landowners do not permit cultivation. Villagers mentioned that the disputed lands were allotted because the poor farmers were unable to cultivate and they also lacked resources to fight in the courts, or land was allotted but access and water to the assigned land were not available. Such lands were never distributed to the servants of the landlords.

In the Tenancy Act 1955, sharecropping (*Bataidari*) was mentioned, so that big farmers could give some land on sharecropping for two or three years. Under the amended act of 1974, recording names of the sharecroppers or maintaining a record of sharecroppers or tenants was waived, hence there is no recording of tenancy and no chance of the lands going into the hands of tillers ever and the land remain permanently in the hands of big farmers.

The officials of revenue department maintain land records. But there is no system to validate the records by the village community. The villagers observe there is no transparency in the land records and certification of records done in the Gram Sabha is nominal. Jatropha plantations are underway on village common grazing lands alternatively recorded as wastelands in Rajasthan. Village community pastures are the common resources in Rajasthan, having potential for equitable accessibility to all classes for the rural population. Rajasthan has 19.4 million hectares of common pasture lands and more than 70% of the total geographical area is common lands. Jatropha cultivation takes away the ability of the commons to support rural livelihoods and harms the ecological services common lands render. Livestock is the major source of livelihood for the poor and they are heavily dependent on the common pastures for the grazing of their cattle. But the Rajasthan Land Revenue (Allotment of Wasteland for Bio-fuel Plantation and Bio-fuel based Industrial and Processing Unit) Rules were adopted in 2007 to accelerate the process of bringing the common pastures under plantations of Jatropha. The Rules allow 1,000–5,000 hectares of village common lands to be transferred from the village community to biofuel industry for 20–30 years. About 15 lakh hectares of village common lands are reserved for Jatropha cultivation and 58,000 hectares of land would go on lease to biofuel companies at ₹400 per hectare for 20–30 years. The transfer of commons and grazing lands from providing fodder to livestock in the local economy to providing fuel for automobiles of the rich will further erode rural livelihoods and increase social tensions. The poor live in a biomass–biodiversity based economy. Diversion of land to industrial biofuels will also disrupt biodiversity/organic matter from meeting the basic needs of the poor and maintenance of ecological cycles. It will create total destitution and collapse of rural agro-ecosystems as biodiversity and water are diverted by industry for biofuel (ibid.).

While the population density per square kilometre in Rajasthan was 129 in 1991, it was only 16 for STs. In spite of this low density, the holdings of tribal cultivators are small, generally less than half a hectare compared with the average size of holdings of usually more than 1.5 hectares in non-Adivasi districts as is clear from the data of Agricultural Census for 1995–96 (Table 7.11). In some of other districts, the tribal lands are in the hands of industrialists. These lands have marble and granite deposits, but the Adivasis get little remuneration.

The ground reality of rural areas is that tribals have some land and there are very few landless tribal families. The quality of the land is poor – hillside land, unirrigated land, rocky and stony land. Before 1980, average land per rural tribal family was 8 *bighas*, 27 years later after division amongst sons means the average per rural tribal family is 2–4 *bighas* (1 acre=2.5 *bighas*) making cultivation unsustainable and uneconomical. This is further compounded by the progressive degradation of village community pastures (Charagah or Charnot) having potential of equitable accessibility to all classes of the rural population. The water bodies are in danger because of encroachment of land.

Land alienation is growing rapidly both in the hills and the forests, irrigated and un-irrigated plains of Rajasthan, individual holdings and community lands. Table 7.12 shows that in terms of land alienation and settlement

Table 7.11 Size of the Tribal Landholdings Compared to District Average

District	*No. of ST farm families*	*No. of hectares per tribal farm*	*Average per tribal farm (ha.)*	*District average per farm family*
Jaipur and Dausa	20,342	9,923	0.49	2.75
Banswara	58,094	27,883	0.48	1.71
Chittor	19,066	10,538	0.55	1.90
Rajsamand	6,303	2,857	0.45	1.31
Sirohi	8,188	4,265	0.52	1.80
Udaipur	68,828	32,907	0.48	1.49

Table 7.12 Tribal Land Alienation and Settlement of Disputed Tribal Land Cases – 1st April 2007 to 31st March 2008

Under Rajasthan Tenancy Act, 1955	*Total cases and area*		*Cases decided*		*Decided in favour of STs*	
	Number	*Area (acres)*	*Number*	*Area (acres)*	*Number*	*Area (acres)*
183 (B)	601	1,328.273	288	1,105.901	107	388.476
183 (C)	13	103.844	5	7.849	5	7.849
175	740	3,125.920	151	722.016	14	32.33
Total	1354	5,557.407	444	1,835.766	126	428.655

of disputed cases, 1,354 cases were lodged, 444 cases were decided, 126 cases were decided in favour of STs.[7]

Less than 10% of the cases have been decided in the Adivasi's favour and the area granted is even less than 10% of the overall area of claim. No data is available on actual handing over of possession. In the light of the guidelines of the government that recorded possession is not to be disturbed and the observation made earlier that only oustees can enjoy their original lands, only those oustees whose lands continue to be in the landlord's possession can cultivate them, not as owner but as a sharecropper – strange restoration of alienated lands to say the least.

Submergence of tribal lands in major and medium dams is an issue. The submerged lands of most major and medium irrigation projects belong to the tribals. The decision of the government of Rajasthan to give a permanent *Gair khatedari* status to all those whose lands are submerged in tank beds, entitled for repayment of the cash compensation is a forward step, but land for land is a far cry. Land conversion for commercial and residential purposes in urban and rural areas has emerged as one of the major issues of tribal land alienation and every government regulation only pushes the issue underground so to say. Most of the lands situated in the urban peripheries in all Rajasthan towns are tribal lands. They are being converted into residential sites and being transferred for large sums of money to other castes. The owner gets only a pittance; the agents who manage the deal are the real gainers. The success of the basic policy of protection of tribals from land alienation is dependent on the efficacy of maintenance of land records and on alertness of the administrative machinery at the field level. The records of rights and mutation registers are important records maintained by a Patwari as per the Rajasthan Land Records Rules, 1957. However, most patwaris do not necessarily work in the interests of the tribals.

The traditional rights of tribals are also at the mercy of the government and revenue administration, and a safe guess says that they are not fully recorded. In 1942, the Maharana of Mewar granted the tribal people living in the forest cultivation rights by a decree called "Tamra Patra" by granting one patta per village. Some villages still have such documents. But after Independence, with the aim of bringing the cultivators out of the clutches of the feudals, the government did not consider the community rights to land in any of the acts and laws from 1949 to 1955. The villagers also felt disempowered by their illiteracy and did not claim the necessary legal titles and remained marginalized in the system. Still under the control of the Jagirdars, (middlemen), the tribal peasant felt silence was the better part of wisdom as the Jagirdars have now claimed ownership of the lands. The situation on the ground is changing however, as the tribals have more awareness of land issues, but whether they will be empowered to take their lands rights back remains a vexed issue.

The government of Rajasthan has done little to restore the Bhil homelands and, in fact, through a devious regulation made it virtually impossible

to identify tribal land alienation because title is not changed though ownership and possession have passed onto non-tribals.

Feudal systems also took root in many Bhil clans, villages as well as families, which severely impacted aspirations and crushed hope to a considerable extent, allowing the political to envelop the social and the social to infuse the political. The harsh physical environment demands acceptance and adjustment and makes the average Adivasi far more tolerant of stress which spills over into other spaces. The Bhil men manifested submission before the feudal and in turn demanded submission in the family. As a result, emancipatory social movements have not found much space in the Bhil aspirational domain, in fact the physical, social and political constraints have also embedded themselves in the cultural and spiritual spaces. Hence, the state, its agencies and non-state actors have faced little demand or challenge from Bhil aspirations for a more human future, nor have the Bhils challenged the state to take decisive steps to stem the process of rapid immiseration and pauperization of a proud people. No pressure is exerted to force the state to act in response to their demands or face the anger of the people on the streets. The scope for human development aspirations and attempts to break out of the feudal space remains a challenge and their struggle for their homeland, which is still not part of their consciousness, could trigger the sense of dignity and self-determination rooted in the search for a more human future.

Conclusion

The relationship of land, rather, secure access to land and Adivasi human development has multiple synapses; the first synapse being land as the foundation of empowerment, the second, land as vehicle of emancipation and the third, as the impetus for advancement. Much of the significance of land, which term includes the earth, and all that earth sustains, recognizes its role in the being and becoming of the Adivasis. Land has multiple faces; economic, social, political, cultural and spiritual. Hence, the Adivasis consider that they belong to the land rather than land belonging to them.

The economic role of land is perhaps the simplest to perceive as it produces food for the body; but for the Adivasi land is the dynamic force that causes human investment of labour in the earth to render food. Without land, the Adivasi recognizes that he toils not for his own renewal but for the creation of surplus for the "owner" of land. In this facet land produces not only food it also reproduces meaning. Land in its social facet provides the space for a community to form and reproduce itself by multiplying the quantum of the labour invested in it manifold. The labour of a few months provides sustenance for the year and thereby land provides the opportunity for leisure, celebration and creation and through its bounty, land creates opportunities for creativity, discovery and synthesis of meaning systems, culture, art and dance. Land holds humans together as a community and

stimulates institutions of internal solidarity, mutual support and collective creativity. Land also means *des* (homeland) the site of the being and becoming of a people with the possibility of creating a nation. Indigenous people in most countries referred to them as "first nations" with human society, belonging to a homeland and sustaining self-governing institutions at the core of their understanding as first nations. Hence the term "land" for the Adivasi is not a commodity for the market, to be bought and sold and as a resource for extraction.

On the other hand, seasonal migration for work, in the brick kilns, salt pans, fishing boats, stone quarries, sand dredging, road building and construction sites has become a forced way of life for the landless and marginal cultivators, most of whom belong to the PVTGs, many of whom were hunters, food gatherers and slash and burn farmers at the time of Independence and who by virtue of their way of life and near absent consciousness of "ownership" were totally excluded from secure access to land of any sort, even homestead land. These communities live on the margins in most respects and who are culturally still "Adivasi" in their mindset, lifeways and social mores are the most excluded eking out a tenuous existence on the edge for most of the year. Uprooted from the social and cultural milieu and their relatively humane way of life, migrant Adivasi men, women and children leaving their villages in search of work, either because of landlessness or semi-landlessness is a deeply dehumanizing experience. Living in the open fields with no protection or security whatsoever whether from the elements or anti-socials, scouring the area for articles that can be burnt to cook a meal, including discarded plastic, purchasing water from the public toilets to cook, bathe and wash their clothes, forced to accept, not just below minimum wages but below survival wages is no less dehumanizing, to be drowned by a fiery cocktail of country liquor at grave risk of a poisoned end to their travails.

It would make sense to try and put in an intelligible capsule the multiple exclusionary impacts following loss of land of an Adivasi agriculturist. Land alienation is the beginning and in particular, the source of multiple exclusions, beginning with exclusion from a secure livelihood and life in a community of his choice and cultural affinity. The exclusion leading to alienation and finally anomie is consequent departure from the village for a livelihood and exclusion from their community of life to live in a group mainly of unskilled migrant manual labour. Within the new frame as an unskilled migrant manual labour, the Adivasi is excluded from the surety of receiving minimum wages let alone living wages, remains grossly uncertain and prefers flight rather than fight as the better part of wisdom. Living on the streets or on open lands or pavements or buildings under construction, he is excluded from shelter and in turn excluded from his family who cannot join him, which divides the actual value of his wages by half. The migrant is also excluded from healthy food and uncultivated food from the forest. Additionally, he faces the problem of preparing his meals, however meagre

they may be, right from collecting firewood and procuring water. There are touts, agents, protectors and *dadas* who have to be provided for and he dips into his already meagre earning as he is excluded from security and protection of his earnings so he prefers to leave the bulk of his earnings with the employer, with no certainty that the employer will not deceive him. His children in the village or with him in his wandering for work are excluded from education and socialization. From the Adivasi point of view the Adivasis suffer from multiple forms of alienation, also excluded from nutrition security, from education, from a secure future, adequate healthcare. The loss of secure access to land is the beginning of exclusion from his/her right for inclusive humanization.

Every single commission, whether of the state or central government, without exception harps on the same theme. Land alienation rings the death knell for the Adivasi people in this country. Every single land reform law for the Adivasis records the same concern as the primary objective in making the law, restoring land to the Adivasi people is like giving them a new lease of life. Yet every recommendation appears to have been made to be forgotten, every law made to be broken, whether by design or by default. It appears that the situation is hopeless or on the verge of being so. While appearing to be a pessimistic conclusion, it also remains an arena of challenge. Will the India of tomorrow give the Adivasi people the space for their authentic survival as free humans or as indentured slaves? Some promise appears in the new law of PESA which empowers the Gram Sabha to restrain land alienation and to restore illegally alienated land. The hope lies in the provision becoming implementable in practice. But in it lies the possibility for political mobilization of the Adivasi people as communities to safeguard and protect the central element of their existence and ethos. It would be safe to conclude that the effectiveness in the implementation of land reforms in the Adivasi areas has been proportionate to their political mobilization. It would also be safe to project that the possibilities of real land reform also lie in the same paradigm.

Notes

1 Large numbers of Gond maidens were acquired as domestics and kept as "wives" and many bore children from the alleged "father" till his transfer provided the opportunity for the "father" to desert the woman and children and return to his family in the state capital or elsewhere without a worry for the future of his children.
2 Findings of Faculty of NIRD in 2009 while undertaking the Review of Land Reforms for the PMO as one of the terms of dispute resolution on the land issue in response to the Long March organized by Ekta Parishad, see (NIRD Faculty, 2009).
3 Data Provided by CLR Gwalior.
4 CLR Gwalior.
5 NIRD Faculty, 2008, Status of Land Reforms – Report to PM in Compliance of Negotiations with Long March of Ekta Parishad, NIRD, Hyderabad.
6 Records of Board of Revenue, Ajmeer, Rajasthan.
7 *ibid*.

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