SaciWATERs

unicef

Drought Preparedness of Vulnerable Sections in Rural Telangana

Shreya Chakraborty, Mansi Goyal, Arunima Rao, Sucharita Sen, Suchita Jain, Manoj Jatav

South Asia Consortium for Interdisciplinary Water Resources Studies
Hyderabad, India, 2018

Declaration: This report is based on a research study carried out by South Asia Consortium for Interdisciplinary Water Resources Studies (SaciWATERs), Hyderabad, India and funded by UNICEF in rural Telangana region. Developers of this report are grateful to the rural communities, local governance and administration, and the field investigators in Kamareddy district for their regular and conducive support to the research team during field survey.

Research team: Shreya Chakraborty, Mansi Goyal, Arunima Rao, Sucharita Sen, Suchita Jain, Manoj Jatav

Cover photo: SaciWATERs.

Maps: SaciWATERs.

First published in January, 2018.

Further information about this report –
Website: http://www.saciwaters.org/unicef
Email: info@saciwaters.org
Contact: +91 4027116721

Funded by: unicef

Table of Contents

List of Figures

List of Tables

Acronyms

APFMIS	Andhra Pradesh Farmers Management of Irrigation Systems Act
APWALTA	Andhra Pradesh Water, Land and Trees Act
BRGF	Backward Regions Grant Fund
DPAP	Drought Prone Area Programme
DWDC	District Watershed Development Committee
ICDS	Integrated Child Development Scheme
IWMP	Integrated Watershed Management Programme
MB	Mission Bhagiratha
MDM	Mid Day Meal
MK	Mission Kakatiya
MNREGS	Mahatma Gandhi National Rural Employment Guaratee Scheme
MoAFW	Ministry of Agriculture and Farmers Welfare
MSP	Minimum Support Price
NMOOP	National Mission on Oilseeds and Oilpalm
NFSA	National Food Security Act
NRDWP	National Rural Drinking Water Programme
NREGA	National Rural Employment Guarantee Act
NRLM	National Rural Livelihood Mission
PDS	Public Distribution System
PMKSY	Pradhan Mantri Krishi Sinchayee Yojana
PMFBY	Pradhan Mantri Fasal Bima Yojana
RKVY	Rashtriya Krishi Vikas Yojana
RRB	Regional Rural Banks
RGDWSM	Rajiv Gandhi Drinking Water and Sanitation Mission
SHG	Self Help Group
SRI	System of Rice Intensification
SWDC	State Watershed Development Committee
TSMIP	Telangana State Micro Irrigation Programme
WUA	Water User's Association

Executive Summary

Drought: From Relief to Risk Reduction

Most of the studies on droughts in India have focussed on the myriad of drought impacts and make these the basis for policy recommendations. While impacts of drought and coping mechanisms to deal with the same in specific areas have been the prime focus of policy, Disaster Risk Reduction also takes into account existing infrastructure and policies during a normal non-drought year that build resilience of people in the event of a drought. The current study thus was taken up in order to turn the lens and look at droughts through policy in order to critically assess strengths and weaknesses of the existing policy environment, access to policy, and the opportunities that this environment provide to further drought resilience. Many sectoral policies already exist in India that mitigate and build resilience against impacts of droughts. Strengthening these existing policies and streamlining them to meet the specific needs in periods of drought is a more effective way of drought management. Telangana, as a region has been closely been associated with discourses of drought-proneness, farmer suicides, policy neglect, and backwardness in the past. As a new state it has a fresh opportunity to strengthen or change paradigms and policies for drought amelioration.

Objectives and Methodology

The key objectives of the study were;

- to understand the evolution of the National and Telangana state drought policy environment
- to critically appraise the current drought policy of the new Telangana state
- to examine the access to drought policies focussing on vulnerable sections and inequalities and gaps therein

A mix of methodological tools including Qualitative Document Analysis, GIS mapping methods, qualitative interviews with institutions at the village, block and district levels, and a quantitative household survey through semi structured questionnaires, were used to attain a comprehensive understanding of drought policies and access. The study traversed through eight sectors of policy in order to understand the drought policy environment, its evolution and its emerging character.

The Drought Policy Environment

The Drought Policy Environment includes policies that both expressly target drought and those that indirectly do so by building resilience. Thus, the spectrum of drought management can be seen in terms of long-term to short-term approaches. The drought policy environment emanates from sectors of disaster management, water, agriculture, climate change, environment, rural development, food security and health. Overall there has been a strengthening of drought policies through sectoral policies in terms of their incorporation of droughts and disasters in their ambit in recent years. However, major debates and contradictions are still found in the policy trends. There are contradictions and divergent directions in the conceptualisation of droughts, binaries of rainfed and irrigated areas, rural and urban water provision, food security and move towards commercialisation of agriculture. The definitions and discourses of droughts in government policy reflect the ways in which the problem and significance of droughts is understood by policy. This lens through which the problem is understood determines the ways in which policy responds to it. This is seen historically in the evolution of drought policy wherein there has been a shift in problematisation of droughts as famines to regional backwardness to water crisis, climate change and

agrarian crisis. Accordingly the responses have shifted from responding to food scarcity to drought prone area development, ecological management, and finally to intensification of the water economy through irrigation.

The problem of drought has become subsumed under wider issues of emerging water crisis, climate change, and agrarian distress. The spatial significance of droughts has thus gone beyond the core drought prone areas. There is a weakening of the deterministic link of droughts with rainfall failure and strengthened link with water scarcity, which has created a space, at the very root, for a greater role of policy in creating and ameliorating droughts. There has been a strengthening of the role of the centre on drought-relevant policies and sectors in recent years. In this context, the natural alignment of central and state policy priorities is crucial for strengthening drought policies implemented at the state level. The shift in national policy focus to agrarian distress and water stress makes the central policy thrusts more aligned to the policy issues and responses of Telangana. This is an opportunity for the state to strengthen its drought, agriculture, and water sector initiatives further through additional support from the central level policy.

Irrigation as Drought Proofing

While there is now a greater role of policy, the increased focus on agrarian distress has ironically led the policy response to further extend irrigation. There is a push for maximising irrigation potential of the country such that even a drought proofing programmes such as IWMP has gotten subsumed under the irrigation scheme PMKSY. As the water economy moves towards a greater intensification and push to its edge, there is lesser scope for water buffers in the event of a deficient year. Irrigation as drought proofing has also been the core drought policy for Telangana. However this focus has limitations, particularly for the case of Telangana. Unlike the major irrigated areas of the country, which are primarily in regions of perennial glacier-fed rivers and alluvial aquifers, Telangana depends on sources of water that are highly dependent on annual rainfall. In a region where irrigation sources themselves are highly sensitive to droughts such irrigation extension with an inherent focus on more water intensive cropping and farming systems (policy discourse of irrigated agriculture development) without the demand management that is built into the rainfed area agriculture policy, this irrigation extension could increase drought vulnerability. It is also a structural and resource centric approach that is blind to issues of access to the augmented resource which takes away focus from the issue of discriminatory and unequal access to and control of the water resources harnessed.

The policy and budgetary thrust of Telangana also shows a major investment thrust in the water sector. Compared to all states, Telangana has a particularly pronounced budgetary focus on the welfare of backward classes and social security. It has also invested a higher percentage of its budget outlay on nutrition. However, with regard to rural development, medical and public health, its relative focus is lesser than that of all states put together. The push for the water sector and social inclusivity emanates from the historical political context of the Telangana region and the associated struggle for state formation. The geographical and historical conditions of the Telangana region have contributed to the way policy neglect has prevailed since the region was integrated in a united Andhra Pradesh state. Water centric neglect is seen through pump-set and groundwater dependent farmers, the absence of required lift irrigation projects, and discrimination in funding as well as river water allocation. With liberalisation, the agrarian crisis only grew evidenced by swelling numbers of suicides in the countryside. The documents of the new state/government show a discourse with strong thrust to ensuring the welfare of social groups.

Sectoral Analysis of Telangana's Drought Policy

The approach to understanding the existing 'drought policy' in Telangana in absence of a single document is done through examining the key sectors of water, agriculture, food security, and rural livelihood. For each sector, three aspects were assessed;

1) Intent,
2) Comparison with current national and previous state policy, and
3) Policy critiques and implementation gaps. Each sector was defined by the current state and national programs and policies.

Water includes Mission Bhagiratha, Mission Kakatiya, Telangana State Micro Irrigation Project, as well as irrigation extension. There are changes in Telangana's approach for example a shift away from groundwater, ensuring universal drinking water access, and a social group based drip irrigation subsidy. There are several concerns that arise including cost recovery and maintenance bodies that would need to be addressed.

Agriculture sector in Telangana consist of a package of programs to boost production of commercial crops and seeds. Agrarian distress is addressed through short term relief measures, and furthermore the strategy is aligned with 'doubling farmers' income'. This sector sees a clear continuation of the previous state's agricultural policy, which was noted for its neglect of rural welfare. The question is there whether Telangana, committed to social welfare, will be able to place social and ecological priorities over that of the market.

Rural livelihood is seen with NREGA, NRLM, caste-based asset distribution, land distribution, pensions, as well as allied sectors such as fisheries. These state specific schemes are indeed new emergences, however they raise a concern with regard to a recent notification from the Ministry of Finance which seeks to curb this kind of spending by states.

Food Security includes expansion of PDS rice, supply of polished rice (*Sanna Biyyum*), Mid-Day Meals and Aroghya Lakshmi meals. While the state massively expands coverage of PDS rice, it is at the expense of other ration items which thus increase people's dependence on the market. Food ration procurement, be it for Mid-Day Meals or Anganwadi Centres, is done by a third party which raises the accountability concerns.

Spatial and Social Contexts

Droughts are experienced differently by varied geographies and socioeconomies. A short duration field survey was carried out in Kamareddy district for understanding the issues of access to various drought related policies as well as the contexts of drought. The four mandals selected for the study showed differences in soil type, presence of tanks and borewell irrigation, borewell and crop failure status, as well as drinking water distress. The red soil areas, with partial failure of borewells, faced complete failure of agriculture but only partial drinking water distress due to reduced yields. In black soil areas agriculture there was almost complete failure of borewells and major drinking water distress but only partial agriculture failure even in rainfed areas. There is a non-linear and imperfect linkage between rainfall deficiency, agriculture failure, and drinking water distress which needs to be taken into account in policy thinking, particularly in the 'irrigation as drought proofing' paradigm.

While some sections are able to cope better during droughts, vulnerable sections suffer disproportionately due to their lower resilience to reduced incomes and poor quality of access to resources. The very base of livelihood and income for lower castes and marginal landholding households is thus precarious and limited, a year of drought and deficit play the role of sharpening existing vulnerabilities. Not only this, their access

to government policy is also lower. Some policies however are depended on highly by the most vulnerable sections, such as SHGs, MNREGS, and thus strengthening of these policies can make drought mitigation more inclusive. Not just women, but women of vulnerable sections of lower castes and class, are particularly vulnerable.

Forward Directions

After completing the policy analysis as well as the field survey, a dissemination workshop was held with Telangana-based individuals from government, civil society, academia, and research to get feedback as well as inputs on how to further the work around building drought resilience with the lens of inclusiveness and access. The Policy debate raised debates of convergence issues, the role of technology, whether to see droughts as disasters or backwardness, and the failures of the state. Recommendations were raised regarding institutions, assets, cropping, and others. Furthermore, suggestions for future research were also given, specifically how farmer perspectives can be better incorporated in policy work.

As a short study seeking to understand a broad and multi-sectoral field, the issues raised are best to understood as questions and areas of concern for a young government. To this end, this study has raised emergent issues and ways forward under the following themes;

1) **Addressing policy research gaps** involves conducting research in different agro-climatic zones, i.e. to understand spatial differences; foregrounding drought in policy analysis so that gaps can be revealed, and lastly to incorporate methods that center farmer perspectives and decision making as part of policy.
2) **Social science has a role** in so-called technical fields, and drought even more so. The kinds of technology made available as well as issues of access; the methods in which extension is conducted, as well as maintaining a dialogue with government and civil society would allow drought management to be properly ensured.
3) Lastly, **implementation** is the actualisation of the policy and therefore is a persistant concern. While this study was not aimed at assessing implementation status, it is clear that this cannot be ignored. Issues of awareness and training, as well as those of vulnerable and invisibilised groups such as women or tribals, obviously will determine the actual outcome.

SALIENT OBSERVATIONS
Policy Issues from Field Insights

Water Sector:

Mission Bhagiratha –

- There is uncertainty and limited conviction among the population regarding user charges being charged for Mission Bhagiratha water.
- Private and PPP RO water was being accessed in all villages visited. There had been "awareness" built regarding the superior quality and safety of RO water as against panchayat water. This behavioural aspect will offer a challenge to the uptake of Mission Bhagiratha for drinking water use.
- Not only the volume but also timing, duration, and regularity of water supply will affect utility of Mission Bhagiratha water.
- Mechanisms need to be put in place to ensure that equity in supply is met in operational terms of the "per-capita" allocation at the village level.

Mission Kakatiya-

- WUA elections provided for under APFMIS have not taken place since 2008, leaves questions of tank maintenance after the one time tank rejuvenation activities under Mission Kakatiya.
- Upper caste households mostly owned land close to and downstream of tanks and thus tended to be the main beneficiaries. Lower caste households had lands either upstream of the tank or at great distance from the tank and thus benefitted lesser both from the groundwater recharge as well as direct tank irrigation.
- Most small and marginal farmers did not own borewells in order to avail the benefits of groundwater recharge from tank rejuvenation.
- Tanks, especially small tanks, are highly dependent on regular recharge from rainfall. Small tanks are unable to sustain its water resource for more than a month in the absence of rainfall recharge and extraction of water through groundwater borewells. During drought years they are not recharged enough to sustain the dependent population and economy.
- Silt for application on fields extracted from the desilting of tanks has to be transported by farmers at their own cost, which only rich farmers could afford.

Micro Irrigation-

- Despite subsidies only a small percentage of farmers availed drip irrigation. The upper caste large farmers accessed this programme more than lower castes and marginal farmers. The primary reason they availed drip irrigation technology as it enabled them to increase their productivity and area under production.
- Access to irrigation source is essential for drip facility and most small/marginal farmers did not have access to irrigation.
- Drip irrigation methods required more frequent and regular irrigation particularly in dry spells, and in red soil areas where the water holding capacity of soils was lower. Thus regular power for running borewells was essential, which is a problem in power short drought periods.

- The subsidy is being computed prior to application of taxes (GST), and the farmer has to bear the price of the taxes which nearly doubles the cost of drip irrigation technology making it significantly lesser accessible to the poor small farmers.
- The drip irrigation system in villages visited was being promoted by Sugar mills and companies for the sugarcane crop. Thus the "water-saving" technology is mostly being utilised for a water-intensive crop.

Government Water Tankers:

- There is immense inequality in accessing tankers. Instances such as SC colonies not receiving tankers, SCs being given much lower limits of water volumes accessed, long queues in which lower castes have to wait for upper castes to access water first.
- Long queues, quarrels over water, irregularity and uncertainty of tankers affect women's employment and household water distress.

Agriculture Sector:

Commercial Agriculture push-

- Volatility of price shocks, higher input costs, and market dependence makes market-oriented commercial agriculture highly risky especially for the small and marginal farmers as well as agricultural labourers. Long term price insulation mechanisms (rather than short term and one time debt waivers) need to be ensured to protect farmers who move to less water intensive but risky commercial crops.
- Farmers were found to be more sensitive to timing, duration, and distribution of rainfall while making cropping decisions rather than annual quantum of rainfall. However many of the promoted commercial crops such as soya were found to be more sensitive to ill-timed rainfall and thus risk failure in normal rainfall years making farmers with irrigation access prefer water-intensive paddy and sugarcane. Promoting water-saving but climate sensitive market oriented crops without proper market insulation may increase farm distress and vulnerability in the guise of drought-proofing.

Crop Contingency Plans:

- Since climatic fluctuations lead to crop failures, particularly for rainfall *sensitive* crops, even in non-drought years (annual total) years, crop contingency plans need to be extended to farmers at all times and not only in the occasion of a drought.
- Crop Contingency Plans are taken up only after a late onset on rainfall and in effect taken up only for farmers who have not yet sown the crop. However, many farmers with even marginal access to irrigation sow early not waiting for the rain, and thus do not benefit from crop contingency.

Procurement:

- Private procurement happens at the farmers' doorstep, thereby reducing transportation and travel costs, whereas government procurement requires the farmer to transport the crop produce with often the only partial procurement.
- Cotton procurement has been linked to ginning mills which are located in concentrated cluster in one region. Farmers not close to the mills were not able to access the government procurement centres due to heavy transportation costs and deterioration of quality of produce while transporting to long distances.
- Government procurement demands higher quality of produce and thus farmers feel there is the risk that

a share or all of their crop produce may not get procured at all even after transporting long distances.

Insurance:

- From the most recent NSSO survey "Situation of Agricultural Households in India" 2011-12, in most of the districts in Telangana the percentage of farmers having access to crop insurance is significantly lesser than percentage of farmers that have experienced crop loss.
- Crop insurance is operationalized primarily through a linkage with crop loans accessed from banks as an annual insurance premium deducted from the loan amount But, most lower caste and marginal farming households did not access credit from banks.
- A significant percentage of households, particularly from the lower castes and poorer households reported being unaware of insurance or not having insurance. Among the SC and BC households despite having access to government sources of crop loans, many households reported not having/no awareness regarding crop insurance.
- Since the insurance is linked to the crop loan, it is accordingly linked to the crop that the loan is covered for. However, farmers reported that they took most crop loans against sugarcane crop as they got higher credit amounts for the crop, but they might choose to sow a different crop, thus in the event of crop failure were not eligible for a claim.
- Crop diversification and changing cropping choices based on vagaries of early monsoon is practiced widely and thus insurance linked to particular crops proves ineffective.
- The process of making insurance claims was not known by farmers and their perceptions regarding insurance claims, from told experiences, is that the process is complex, time consuming, and reveals no results.
- There were complaints regarding immense delay in visits by insurance officers to compute crop loss, and by then the field was already cleared for the next cropping season.

Extension:

- Less than 40% households had access to government extension.
- The upper castes and large farmers have reported higher access to extension services. This is also due to a popular method of extension through *progressive farmers*.
- Farmers reported that even if government officials visit the village for extension, they usually come at hours when most farmers are in the fields for cultivation and farm labour.

Input Subsidy:

- While subsidised seeds are provided farmers reported issues such as subsidised seeds and inputs being sold after sowing is complete for the season.

Promotion of dryland practices:

- As compared to even pulses, farmers reported rice to have the ability to withstand rainfall fluctautions as well as requiring less weeding.
- SRI has very high labour requirement which is a challenge in some areas where there is lack of availability of agriculture labour at low costs.
- Cotton and soyabean induce high risk and distress due to their high sensitivity to ill-timed rainfall and

moisture levels affecting propensity for crop failure or reduced quality of output fetching low prices.

Rural Livelihoods

MGNREGS

- Convergence of MGNREGS with Swachh Bharat Mission prioritised NREGS activities on building toilets and not on drought-proofing structures since last two years.
- Farm ponds could be taken up only by large farmers as it required adequate land area. Groundwater recharge benefited mostly the large farmers as they had access to borewells.
- Calculation of wages is based on volume of work (measurement of structure). During months when soil moisture content is less, tasks like breaking the ground become more laborious and thus volume of work completed decreases and so do wages.
- During drought years while days of work one can demand was increased, in effect there was lack of availability of work due to high demand for work. In more populated villages there was more demand for work and limited works taken up relative to the population and thus harder to get NREGS work during droughts.
- Delays in MNREGS wage payments for an average of 42 days, ranging from a few weeks to over three months, have been reported. Given that NREGS provides the basic source of livelihood to the most economically and socially vulnerable sections, such delayed payments can pose as sources of vulnerability to droughts to these sections.

NRLM:

- The access and dependence of vulnerable groups on SHGs for credit is significant.
- SHGs provide a limited amount of loan amounts, and are unable to meet the increased demand for credit, for both personal and livelihood purposes, during drought periods.
- Since facilities of low interest crop loans, crop loan waivers, and loan linked crop insurance are made available through and associated with formal sources of credit, these informal sources lose out on access to many government financial benefits and policies.

Others:

- Fishery developed through tank rejuvenation in Mission Kakatiya is of use only in big tanks that can sustain water for longer periods. In smaller tanks water is retained for barely a month and thus dependence on it for fishing is limited.
- Government support for fodder for livestock during droughts is limited. People had to travel long distance to other districts at their own costs to access fodder. Heavy cost burden has to be borne by farmers for fodder access.

Food Security:

- The expansion of PDS rice coverage seems to be coming at the expense of reduced number of ration items generally available through the PDS. Telangana had discontinued the earlier state-sponsored scheme called 'Amma Hastham' which provided 9 essential items in a packaged through PDS, and currently only rice, kerosene, and sugar are available.
- Households reported a lack of pulses and sparse and unequal distribution of kerosene to be most troublesome for beneficiary households, therefore increasing dependence on the market.

- Fund allocation for MDM and ICDS does not change during a drought and food prices do, the agencies tend to reduce the quantity/quality of food (vegetables/eggs) to adjust for the increased prices.

- Based on physical and socioeconomic contexts of a region there is a non-linear and imperfect linkage between rainfall deficiency, agriculture failure, and drinking water distress. This is particularly relevant for the new Drought Manual that has provided a fixed level of rainfall deviation as the first and necessary trigger to declare a drought. Some regions may face agricultural droughts at lower levels of rainfall deviation. There is a need for spatial analysis in different resource and agroclimatic regimes with different local practices.
- Some sections of society are able to cope better during droughts while vulnerable sections suffer disproportionately due to their lower resilience to reduced incomes and poor quality of access to resources and policies.
- Inequalities need to be met head on firstly by recognising and acknowledging these inequalities in policy, which currently is more discursive than functional. Then the means and paths through which these socioeconomic inequalities operate and reproduce in rural society needs to be researched and identified. These processes and variables that limit access to resources and policies need to be built in to the design of policies and methods to address these limitations need to be explicitly specified. And finally since these socioeconomic inequalities are entrenched in social norms and practices, regular monitoring of access to these policies need to be provided for. Grievance redressal, regular audits, and availability of monitoring data are essential.

I | INTRODUCTION

I.I RATIONALE OF THE STUDY

The UNICEF Report on Drought in India 2015-16 identifies that "Drought risk reduction, not just response, (hence) becomes imperative." According to UNISDR[1] "Disaster Risk Reduction (DRR) aims to reduce the damage caused by natural hazards like earthquakes, floods, droughts and cyclones, through an ethic of prevention". Thus, drought risk reduction incorporates not only the actual impacts of drought and the coping mechanisms to reduce distress due to it, but also broadly focuses on the existing infrastructure, institutions, policies, and practices in place during a normal non-drought year that builds innate resilience of a population to the unforeseen advent of a drought condition. This difference between response and risk-reduction needs to be recognized in government discourse and policies on drought management.

Much of 'drought-management' focuses on provisions and actions to be taken when faced with a drought. The recent Supreme Court direction[2] on drought declaration noted the issues in timely declaration of drought by states. Given the delays in declaration of drought and the administrative procedures involved in operationalizing these provisions and actions, the institutional responses to droughts are likely to present some drawbacks. In the face of these gaps, households, particularly the most vulnerable sections, make coping decisions based on traditional practices and accessible institutions and policies. Thus in addition to disaster response mechanisms of the government and local bodies during a drought, the development and upkeep of infrastructures, policies and practices that internalize prevention as a general ethic, is essential to reducing risk to droughts.

More than any other 'natural' disaster, droughts have found a significant place in the development discourse since the very beginning of development planning in India. Droughts have been often, and almost deterministically, linked with some of the biggest social and economic crises in the country, from famines to farmer suicides. Much of what has formed the structure of drought policies in India has catered to treatment of these crises. Thus, unlike the case of most other disasters, drought mitigation has been a part of and evolved through India's development policy for many decades now. Yet, even after seven decades of drought policies, India continues to be ravaged by frequent, successive and severe droughts. This brings out the need to look at the drought policies as they have been and as they are, how they have evolved over the years and critically analysing them for their efficacy and gaps.

The National Drought Manual acknowledges that droughts are different from other natural disasters in terms of the complexity of the phenomenon, its characteristic creeping onset, silent spread and gradual withdrawal, and its varied temporal and vast spatial spread. Droughts, more than other natural disasters, are very intricately knit with agriculture and larger socioeconomic development of regions, as well as non-structural issues such as ecological landscape, socioeconomic fabric of communities, malnutrition and health. This long term and intense linkage that droughts have with agriculture development, livelihoods, resource access, poverty and backwardness makes the role of policy more significant and potent for its amelioration than it is for any other disaster.

The need to build capacity and understanding of the drought policy environment is also essential in light of the National Disaster Management Policy 2009 which propounds "mainstreaming disaster management into the developmental planning process". Many sectoral policies already exist in India that mitigate and build resilience against impacts of droughts. **Strengthening these existing policies and streamlining them to meet the specific needs in periods of drought is a more effective way of drought management**. Most of the

[1] https://www.unisdr.org/who-we-are/what-is-drr - official website accessed on 11th Dec 2017

[2] *Swaraj Abhiyan v. Union of India* (Writ petition (Civil) No. 857 of 2015 (Supreme Court 11/5/2016)

studies on droughts in India have focussed on the myriad of drought impacts and make these the basis for policy recommendations. The current study was taken up in order to turn the lens and look at droughts through policy in order to critically assess strengths and weaknesses of the existing policy environment, access to policy, and the opportunities that this environment provide to further drought resilience. The study is intended to add to the UNICEF Drought Impact study carried out for the drought of 2015-16 (UNICEF 2016) through a policy assessment contributing to the larger framework of disaster risk reduction.

I.2 RESEARCH OBJECTIVES

1. To understand the evolution of the National and Telangana state drought policy environment with a view of convergence and coherence within a multisectoral approach.

2. To critically appraise the current Telangana state policy emanating from different sectors of development planning.

3. To examine the access to drought policies, with a focus on vulnerable sections, and inequalities and gaps therein in order to examine the social contexts of droughts.

I.3 METHODOLOGY

The Drought Policy analysis was based on an amalgamation of various methods and data sources each feeding into the other.

I.3.1 Qualitative Document Analysis

'Documents' can be understood to be almost any sort of record, from photographs to online content, however Qualitative Document Analysis (QDA) follows a generalised process for almost all documents. It is an emergent method in the field of communication studies, and the overall approach follows a less rigid process of immersion and constant exploration in the subject matter. Here, flexibility is permitted in terms of the 'variables' that emerge. By focusing on specific terms (e.g 'drought' or 'water') over time also allows for a temporal tracking of discourse. Aside from their content of policy and other government sources, documents were also understood for their significance and context.

The Policy intent, evolution and convergences were analysed using a variety of document types (table I.1 and annexure I.1).

According to Bowen (2009), the analytic procedure follows the following steps; 1) Finding documents, 2) Selecting documents, 3) Appraising (making sense of) documents, and 4) Synthesizing the 'data' (i.e. excerpts from the documents). The first step was primarily done through online searches but also by approaching relevant institutions, and further selection, the second step, was based on availability and relevance. The latter two steps consist of; 1) skimming or a superficial examination, 2) reading or a thorough examination, and 3) interpretation. This can be done through a mix of both content and thematic analyses; and in this study, documents were examined with key word searches and following discourse without structured coding.

Table I.I – Documentary Data Sources

Sectors	• Disaster Management • Water • Agriculture • Climate Change	• Environment • Rural Development/employment • Food Security
Document Type (Primary)	• Policies • Five Year Plan volumes • Acts/Bills • Manuals/Handbooks • Operational Guidelines	• Mission Documents • Commission Reports • Finance Commission Reports • Budget Speeches • Telangana Socioeconomic Outlooks
Document Type (Supplementary)	• Government Orders • Parliamentary Documents (starred questions) • Government websites	• GoI Press Releases (PIB) • CAG Reports • Academic Literature • Govt. Notifications

Different government documents are framed and formulated for varied intents and thus have to be used and read differently (table I.2). For the purpose of analysing the evolution of the drought policy environment, documents that are published with a temporality are used. In these documents, the analysis incorporated not only a study of the way in which droughts are problematized and responded to by policy, but also, an understanding of the thematic sections under which 'drought' featured, since some of these documents are multisectoral. , Documents where language holds more significance such as legally binding documents like Acts/Bills and politically binding documents[3] like visions, policies, official speeches and subsections of larger reports/manuals that pertain to the definition and intent of the government were used to study discourses around drought . Programmes and schemes have been analysed more for their intent and operational content. In some cases, particularly for earlier periods in the assessment of policy evolution wherein disaggregated sectoral documents are rarely available or accessible, references/descriptions of major programmes and schemes have been used to construct the policy thrusts of the period. Lastly, this method also involves triangulation of the document analysis from other sources, which this study has done through quantitative analysis (using secondary data from the NSSO, Census, WRIS as well as Commissioned policy assessment reports), a review of academic literature as well as a field survey.

[3] Documents or statements made to contain political intent and promises that one can hold the state accountable for not legally, but potentially in an electoral and political sphere.

Table 1.2 – Utilisation of Policy Documents by Purpose

Purpose: For analysing the evolution of drought policies
• Five Year Plan Documents 1951 - 2017 • National Water Policies 1987, 2002, 2012 • Drought Manuals: Famine Commissions 1880, 1901; National Drought Manuals 2009, 2016 • AP and Telangana Budget Speeches: 1971 – 2017 • DPAP/IWMP Guidelines 1981, 1995, 2001, 2003, 2008, 2015 (PMKSY)
Purpose: For assessing discourses of drought
• Regulatory Acts/Bills • Chapter I (vision chapters) of Telangana Socioeconomic Outlook 2014-2017 • Drought Manuals/Handbooks • AP and Telangana Budget Speeches • National and State Policies (Water, Agriculture)
Purpose: For studying specific government programmes and schemes
• Operational Guidelines for schemes • Relevant Regulatory Acts/Bills: NREGA 2005, NFSA 2013 • Government Ministry/Programme Websites • Telangana Socioeconomic Outlooks
Purpose: For supporting critical analyses of the policies
• Commissioned Government Reports • CAG Reports • Government Orders/Notifications • Government Press Releases (PIB) • RBI Study of State Budgets Reports • Academic Literature

1.3.2 Field Methods

The policy document analysis was supported by field insights for a comprehensive understanding of policy from formulation to implementation and access. Fieldwork was taken up in Kamareddy district of Telangana state, which was carved out of the erstwhile Nizamabad district (table 1.3). Nizamabad was one of three districts in the new state of Telangana where all mandals were declared as drought affected in 2015.

Secondary Data Analysis: A mapping exercise was done using LISS III sensor data from Resource Sat II and IRS p6 satellites to understand the agricultural land-use pattern and monitor the changes in Kamareddy district. Based on rainfall,four recent time periods were selected to notice the change in cropped and fallow area. Also, based on availability of satellite data, two season images for the year 2012, 2014, 2015 and 2016 were procured for the district from the National Remote Sensing Center, Hyderabad.

In order to achieve accuracy all 8 satellite images were geo-referenced again with UTM projection and WGS 84 datum and clipped for Kamareddy district. A high resolution land-use map was generated using mixed methods (automated segmentation and visual interpretation) from freely available Sentinel 10 meter data for the year 2016. It helped to clearly mask out other areas such as built-up, forest land and barren land from the LISS III images. The clipped agriculture area was classified into two classes' viz. crop and

fallow for the respective season and year. Also, the Normalized Difference Vegetation Index (NDVI) was calculated for all the 8 images. The water spread area was calculated separately.

The latest Agriculture Census 2010-11 and Census of India 2011 data were used for understanding the agriculture scenario, irrigation coverage, cropping patterns, and drinking water situation in the different mandals of Kamareddy district. Based on these assessments broad regions covering four mandals were chosen for a Rapid Rural Assessment (RRA).

Qualitative Field Methods: were used for the following purposes:

- Regional assessment of drought impacts
- Understanding ground level policy implementation and contextual issues therein
- Selection of study sites for household survey

Group discussions and short interviews with key persons and village level institutions were conducted in 13 villages during pilot fieldwork to get a picture of the regional contexts of drought. This process also helped in the selection of villages in the region for a more detailed household survey based on semi-structured questionnaires. In-depth interviews with village level officials and institutions, mandal and district level officials were done to understand the process and issues of implementation of various drought-related policies. The interviews were conducted with the village sarpanch/upsarpach, NREGS fieldworker, Anganwadi workers, School officials, Ration shops, Rural Medical Practitioner, and Mandal and District level department officials (Agriculture, Irrigation, NREGS, Civil Supplies). While most of the area is non-tribal, one case of a *thanda* (tribal hamlet) was also studied through qualitative interviews.

Quantitative Field Methods: Four clusters of villages were selected in four regional contexts across four mandals in Kamareddy – Tadwai, Sadasivnagar, Machareddy, and Domakonda. A total of 253 households in 6 villages were surveyed through semi-structured questionnaires (annexure 4). A stratified sampling of the households was done according to caste and landholding size (including landless). The questionnaire included both household level questions as well as individual level questions for a gendered analysis. The questionnaires were designed so as to capture responses and issues regarding access to and quality of government policies as well as other coping mechanisms of the rural population.

Table 1.3 – Mandals and Villages covered for the Study

Villages covered for the study		Purpose of coverage	
Mandal	Village	Meso-regional contexts	Sample household survey
Tadwai	Brahmajiwadi	✓	
	Krishnajiwadi	✓	
	Argonda	✓	✓
	Chityal	✓	✓
	Annaram	✓	
Sadasivnagar	Dharmaraopet	✓	✓
	Lingampally	✓	✓
Biknur	Anthampally	✓	
	Laxmidevpally	✓	
Domakonda	Lingupally	✓	✓
	Sangameswar	✓	
	Anchanur	✓	
Machareddy	Issaipet	✓	✓

1.4 CHALLENGES AND LIMITATIONS OF THE STUDY

The study was faced with many obstacles with regard to a comprehensive and robust policy analysis. Firstly, the drought sector being a vast multisectoral policy field posed challenges of the sheer expanse and depth. comparable and comprehensive policy statements that are publicly accessible are limited particularly with regard to state level policies. Different sectors functioned through different types of documents; some had clear sectoral policy document while others were based on prescriptive handbooks, Action Plans, Mission Documents, Strategy papers, Operational Manuals of individual programmes, or schemes and missions. Since each of these documents is formulated for different purposes, they had to be read differently. Priorities had to be set for varied policy documents according to the purpose and process of analysis, and any reading of policy paradigms had to be cross-checked and triangulated with other documents to check for conflicting readings and policy directions.

With new political regimes, both at the centre and the state, there have been major institutional and policy changes that are still in early formative stages and new policy directions and initiatives are constantly emerging. New upcoming and debated policy directions were being reported regularly through government notifications, orders, media reports and being updated throughout the project period. While any conclusive analysis of these new emerging, yet to be implemented initiatives was not possible, reports and press releases did allow us to gauge the broad directions that relevant policies of the drought sector was taking. Needless to say, availability of documentation of early stage policies was a major challenge, particularly for the new state of Telangana.

Since the study was envisioned as a short duration project, there was a limit to the depth of analysis possible for different policies that not only cover various sectors but also a multiplicity of technical disciplines such as agricultural science, hydrogeology, rural finance, irrigation technology etc. While the study has aimed to cover a range of policies for a critical assessment, these are in no way exhaustive. A thorough review of individual programmes and policies would potentially entail a much larger study with multiple expertise working complementarily. While much of drought research tends to be done in disciplinary compartments divorced from uncontrolled environments and social structures, this limitation offers a direction for future research in the drought sector.

2| THE DROUGHT POLICY ENVIRONMENT: STRUCTURE AND EVOLUTION

The National Drought Manual acknowledges droughts as being a complex phenomenon with varying characteristics manifesting across different agro-climatic regions and thus does not offer a universally accepted definition to adequately encapsulate this complexity. The significance of droughts in policy emanates from its vast radius of impact and the understanding of this phenomenon as a *natural* calamity that is beyond the control of society and policy. It is the understanding of these impacts or symptoms of a drought that have thus far provided the basis for policy response to it. However, the problematization of droughts has been rather simplistic as a *natural calamity* and has rarely, if at all, incorporated the role of regional, household or individual socioeconomic vulnerabilities and policy in creating the impacts associated with droughts. Mathur and Jayal (1995) bring focus to the importance of making a distinction between a trigger event like deficient rain which is natural and the associated disaster which can be largely man-made. Wilhite and Glantz (1985) also recognise that the impact of a drought depends largely on society's vulnerability to drought at that particular moment. The diagnosis of the problem has a central role to play in its treatment or management. Thus, the problematization of droughts by policy is core to understanding the responses of policy to the problem. Thus the aim here is to understand whether this problematization of droughts has evolved over the years, what direction it has moved in and why. This is central to understanding what directions the drought policy will or should take in the future such that it is in line with the larger development policy paradigm and not a utopian formulation that is misaligned with the larger priorities of economic policy.

2.1 THE DROUGHT POLICY ENVIRONMENT

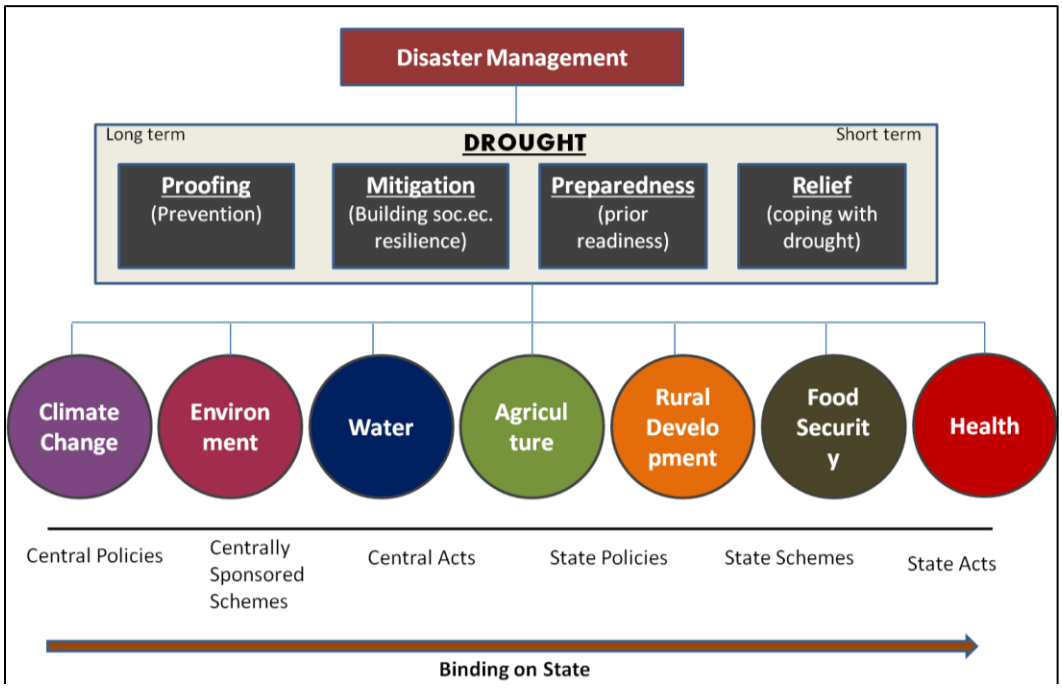
The drought policy environment in India emanates from two sets of policies – one, sectoral policies that acknowledge their role in drought management and thus explicity refer and respond to droughts; and the other set of policies which include those that do not outrightly acknowledge or state their role but nevertheless help build direct drought resilience of the rural population. Various sectoral policies play roles catering to different aspects of the spectrum of drought management approaches ranging from the long term to the short term:

- *Drought Proofing*: Long term approach of preventing drought situations by ensuring and improving water resource availability in a region
- *Drought Mitigation*: Reducing the impact of droughts by empowering the community and building in long term socioeconomic resilience (drought resilient institutions, infrastructure, and practices)
- *Drought Preparedness*: Both policy and community practices which incorporate an awareness of and preparation for the constant possibility of a drought condition in the very near future.
- *Drought Relief*: Ad-hoc emergency provisions in the short term to minimise the distress after a drought has already set in and declared

Among the policies at the national level that statedly cater to drought management are water policies, watershed management, employment generation through MNREGA, Irrigation policies like PMKSY, Crop insurance, and animal husbandry. At the state level in Telangana, tank rejuvenation through Mission Kakatiya, and extension of surface water irrigation through lift irrigation projects, and short term initiatives such as one time crop loan waiver are identified with stated intents of drought management. Water, Agriculture, Environment, and Climate Change policies all comprise the core drought-proofing policies. Each of these sectoral policies provides an intent or direction for managing water resources such that water-scarce or drought-like conditions can be prevented. Climate change and agriculture also offer policies for

drought mitigation that build more drought resilience in the agricultural economy. Rural development, drinking water and sanitation, livelihoods, food security, women and child development, and health sectors all offer long term mitigation and relief mechanisms for droughts. Agriculture and climate change strategic knowledge/sustainable agriculture missions offer drought preparedness.

Figure 2.1 – The Drought Policy Environment



Source: Constructed by the Author.

The drought policy environment is based not only on multiple sectors but also works in a complex federal environment with both the centre and the state contribution policies and programmes for drought management. Policies are a complex of policy statements, visions, programmes or schemes, missions, legal acts, constitutional provisions etc. Most of the sectors that are core to drought management are under state subjects and thus states constitutionally have the right to formulate independent policies, rules, and programmes in these sectors. While drought relief is primarily a responsibility of the state, many central plans and policies determine directions of long term drought risk reduction in the country. Different kinds of central policies are binding on the state to varying levels. For instance a central act is legally binding on states; centrally sponsored schemes offer guidelines or an operational framework for the states to function under and thus marginally binding, whereas policy intents are not in anyway binding and offer only broad directions that states are not compelled in any way to follow.

Table 2.1 – Range of Drought Related Sectoral Policies

Sector	Drought related policy responses/policy directions	
Disaster Management	• Institutional setup for drought management • Drought Manual	• Relief to Risk reduction framework • National Disaster Management Plan
Water	• Irrigation development • Watershed Management • Water conservation and management	• Drinking water and sanitation • Sectoral water prioritisation
Agriculture	• Dryland/Rainfed agriculture • Irrigation development • Allied agric. sectors • RKVY (State specific Agriculture sector Plans and flexi fund)	• Agriculture Price Policy • Agriculture Input subsidy • Agriculture Finance (credit and insurance) • Agriculture Contingency Plans
Climate Change	• National Mission for Sustainable Agriculture	• National Water Mission • National Mission on Strategic Knowledge for Climate Change
Environment	• Control of Water Pollution • Afforestation	• Groundwater management
Rural Development	• Rural employment generation • Rural Finance (SHGs, RRBs)	• Alternative livelihoods (NRLM) • BRGF (flexi fund)
Food Security	• PDS • Mid Day Meals	• ICDS • National Food Security Mission
Health	• Emergency care and Disaster Preparedness	• Access to public health care • Enforcement of public health standards

2.2 COHERENCE AND DISSONANCE

When multiple sectors and levels of government contribute to a policy framework it calls for an analysis of the coherence of the policy directions emanating from these different sectors and documents. Furthermore, a critical assessment of whether operational convergences are enabled and facilitated is important. Through this, some prominent polarities and contradictions are found in policy.

2.2.1 Conceptualisations of Drought: There are different conceptualisations of droughts in policy, which at the outset may seem minor, but a critical look can make the issues with these distinct conceptualisations more pronounced. The National Drought Manual 2009 identified droughts as a *"normal, recurrent feature of climate"*. This definition looks droughts purely as a climatic condition which calls for a relief centric approach.

The National Water Mission 2011 defined it as *"a temporal phenomenon indicating a lack of water in that particular time as compared to the other periods"*. This definition focuses on droughts as a lack of water. Lack or scarcity of water can occur at any time and due to many causes such as water pollution,

appropriation of water for water intensive crops, over-extraction of water for industry, or a diverting of rivers for other purposes. Thus there exists a stronger role of development policy. However, the question can be asked; do these cases fall under drought policy or drought management?

The Crisis Management Plan 2016 brought out by Ministry of Agriculture and Farmers Welfare conceptualised droughts as *"a situation of water shortage for human, cattle and agriculture consumption resulting in economic losses, primarily in agriculture sector."* If drought connotes a failure of agriculture, then is there a simple linear relationship between rainfall and agriculture impact? Different regions with various agricultural practices, soil moisture conditions, and groundwater aquifers may face different impacts of similar rainfall deviations.

2.2.2 Short-term Coping versus Long-term Prevention: One of the major dissonances within policy is within the Disaster Management Policy and National Water Policy 2012. The National Disaster Management Policy 2009 calls for a shift from short term relief thinking to long-term comprehensive disaster risk reduction. The National Water Policy 2012 however states that, *"While every effort should be made to avert water related disasters like floods and droughts, through structural and non-structural measures, emphasis should be on preparedness for flood/drought with coping mechanisms as an option"*, and further, *"Protecting all areas prone to floods and droughts may not be practicable; hence, methods for coping with floods and droughts have to be encouraged."* Thus, while prevention of the occurrence is provided for, the water policy calls for an emphasis on short term preparedness and coping after the event of a drought.

2.2.3 Rainfed Areas versus Irrigated Areas: Drought policies in the agriculture realm read through the Five Year Plans have mostly focussed on rainfed/dryland agriculture areas with the assumption that irrigated areas are drought-proof. However, the National Drought Manual 2016 clearly identifies that **droughts, by their definition as rainfall deviation, can affect any agroclimatic region**. Particularly for regions where water is scarce and highly dependent on annual rainfall availability, as in the case of inland peninsular regions like Telangana, this distinction between irrigated and unirrigated regions is different from in the northern alluvial belts of perennial rainfed rivers and deep aquifers.

2.2.4 Food Security versus Commercial Crops: Food security has been a major issue identified in the face of droughts and increased market prices, as evidenced by the National Food Security Mission and promotion of the second Green Revolution in rainfed areas. At the same time, policies for development of rainfed/dryland areas, Doubling of Farmer's Incomes, and Sustainable Agriculture are geared to promote less water intensive commercial crops for the industry and market. Since the Tenth Five Year Plan, PDS coverage was changed from a universal to a targeted system. More recently shifts in the direction of covering PDS through direct cash transfers have been initiated in some parts of the country[4] and are being debated in others, this would further push the rural population further to the market for food access. Additionally the National Food Security Act 2013 states that *"The Central Government, or as the case may be, the State Government, shall be liable for a claim by any person entitled under this Act, except in the case of war, flood, drought, fire, cyclone or earthquake affecting the regular supply of foodgrains or meals.."*

Together, the contrast of food security and market-based production needs to be acknowledged in order to bring coherence between these two policy directions. If not planned in conjunction with one another, these contradictions can cause food insecurity particularly in dryland areas and during drought periods of increased food prices in the market.

[4] in operation currently in the Union Territories of Chandigarh, Dadra, and Puducherry

2.2.5 Rural versus Urban Water: Sectoral priorities of the water sector in policy documents (NWP, 2012; APSWP, 2008) have all identified drinking water as the first priority of water provision. However, predominantly rural drinking water is publicly provisioned through groundwater, on which the state has little or no control as it is highly privatised and informal[5]. On the other hand, major growing urban centres are provided water through state controlled, large and medium reservoirs. Thus when policy priority is set it is mostly the reservoirs that can be controlled by the state for ensuring drinking water provision. Indirectly, this builds a gap between rural and urban drinking water policy. Also, in recent water policies, both national and state, as new sectors of water uses emerge such as industry and recreation, there is a shift of water provisioning priority from the rural to the urban. Lastly, through participatory water management the onus for water access in rural areas is increasingly distanced from the state responsibility.

Overall there has been a greater coherence in sectoral policies in terms of their incorporation of droughts and disasters in their ambit in recent years. Most relevant sectors have incorporated issues of water scarcity and insecurity, droughts, or disasters within their statements. While there is a broad coherence between various sectors in identifying the risk of droughts and the need to manage water for drought proofing regions, these above mentioned contradictions and opposing policy directions can affect outcomes in uncontrolled environments where one development direction can pose a challenge to the other.

2.3 EVOLUTION OF DROUGHT POLICY

The definitions and discourses of droughts in government policy reflect the ways in which the problem and significance of droughts is understood by policy. This lens through which the problem is understood determines the ways in which policy responds to it. Rathore (2005), critiques the Government perception of drought as a 'crisis situation' and a short term problem, and therefore manages it as an isolated event. As a result, the situation is usually not taken seriously once the rains have returned. Understanding the problem of droughts as famines led to the early initiative of PDS and push for food production through Green Revolution. The shift in this problematization to that of scarcity pushed the focus on employment generation programmes. **A shift in problematization to drought as inherent backwardness brought focus to building longer term resilience and ameliorating backwardness of drought prone regions** by creating durable and productive assets through initiatives like the Rural Works Programme. This concept was further focussed on activities and assets for building ecological balance during the fifth and sixth plans. Since 1994 Hanumantha Rao Committee recommendation, the focus of drought proofing through watershed management programmes shifted more to water resource conservation and recharge. This shows a focus of problematization of droughts to their climatic and hydrological manifestation. Since the 1970s, the issue and significance of droughts was restricted to core areas of backwardness and drought proneness. The Eleventh Five Year Plan in 2007 and the broader period show a paradigm shift.

In the most recent period, widespread water crisis, groundwater depletion and natural resource degradation beyond the core areas came to focus and got intricately linked with agrarian stagnation and distress in the country. Droughts have shifted from being seen as drivers of water insecurity to being causes of *deepening* of water crisis through their incorporation under the larger issue of Climate Change. Through their association with climate change they have become intricately related to a wider issue of agrarian distress. In the twin process of droughts getting subsumed under a larger issue of water crisis and getting linked to the larger physical problem of climate change, the significance of droughts has moved beyond the area centric approach that it earlier followed under *drought prone areas*. This shift poses a significant challenge to the traditional conceptualisation of droughts purely as rainfall failures; the role of policy in creating water stress has become increasingly prominent thus de-centering rainfall deviation asas the problem itself. These shifts have been clearly discernible in the policy language.

[5] Five Year Plan documents and AP Budget speeches

Table 2.2 – Problematization of Droughts and Policy Responses

Period	The problematization of droughts	Policy response
Post-independence (1950s)	Colonial hangover: Droughts as Famines	**Food security:** •Reliable PDS •Green Revolution
1960s	Droughts as scarcity	**Food production and Providing purchasing power through employment generation:** Green Revolution Crash Scheme for Rural Employment, Rural Works Prog.
1970s	Droughts as regional backwardness	**Development of rural infrastructure and productive assets:** •Area Development Programmes •Drought Prone Areas Programme •Integrated Rural Development Programme •Desert Development Programme •Small Farmer Development Agency
1980s to early 1990s	Droughts as regional backwardness (due to ecological imbalance and lack of productive irrigation)	**1980s special focus on ecological balance and irrigation:** •Sivaraman Committee on Backward areas (1981) •Swaminathan Committee (1982) •Resource management, groundwater development and rainfed/dryland technologies for development of dryland/rainfed areas •Irrigation extension
1995 to 2000s	Droughts as low agricultural productivity (due to water scarcity)	**Productivity enhancement** •watershed management focussed on soil and water management based on community participation, WUAs, user charges, and private farm investments •Focus on groundwater recharge and regulation, micro irrigation •Push for a second green revolution, doubling food production (diversification) through region specific strategies (9th FYP), National Food Security Mission 2007 •MNREGS focus on land productivity and water recharge works
Late 2000s onwards	Droughts as intensified water crisis and farm distress	**Push for doubling farm incomes:** •Watershed plus activities: reintroducing allied livelihoods and commercial crops •PMKSY: focus on increasing irrigation coverage for higher production and incomes •National Policy for Farmers •Strategy for Doubling Farmers Income

Source: Analyzed by the research team from Famine Commissions (1880, 1901), Five Year Plan Documents, DPAP/IWMP/PMKSY guidelines (2001, 2003, 2008, 2015), Commissioned reports (Hanumantha Rao 1994; Sivaraman Committee 1982); National Water Policy 1987, 2002, 2012

2.4 EMERGING DISCOURCES AND POLICY CONTEXT

The Global Assessment Report (GAR) 2015 notes that agricultural drought is probably the most *"socially constructed"* of all disaster risks (UNISDR 2015). This understanding of droughts has also fed into the National Disaster Management Plan 2016. While the National Drought Manual 2009 states - *"Conditions of drought appear when the rainfall is deficient…"* relating droughts solely to rainfall deviation, the updated National Drought Manual 2016 states – *"Conditions of drought appear primarily, **though not solely**, on account of substantial rainfall deviation …".*

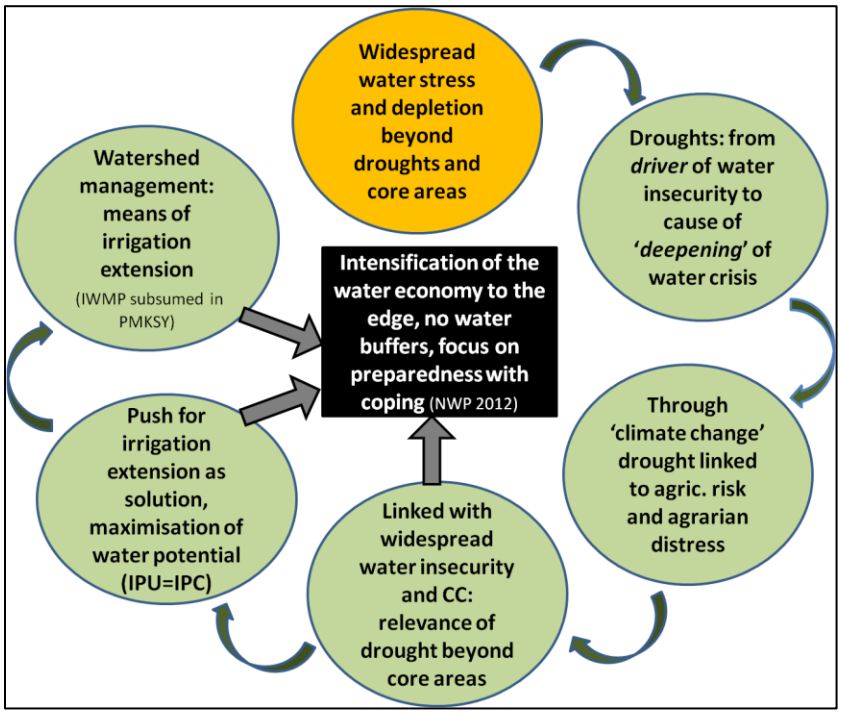
This explicit change in language is also visible in the annual Crisis Management Plans (2016 to 2017) of the MoAFW. The Indian Meteorological Department in 2016 removed the word 'Drought' from its official usage and replaced it with the term "Deficient Year". This conceptualisation of droughts as subsumed under a larger problem of water crisis, and increased prominence of water depletion and scarcity in the creation of droughts is also visible in the inclusion of a hydrological indicator for drought declaration in the new Drought Manual[6]. This shift in causality from 'droughts as a cause of water scarcity' to 'water scarcity as the cause of drought' is visible in discourses as well. The state of Telangana, which has a long history of facing backwardness and water scarcities due to policy decisions (see Chapter 3), states in its draft state drought manual (GoT 2016) – *"Acute water scarcity conditions for longer periods will trigger drought"*. The Draft Model Bill for Conservation, Protection and Regulation of Groundwater 2016 states – *"this (groundwater) crisis is mainly responsible for the recurrence of droughts".*

This weakening of the deterministic link of droughts with rainfall failure and strengthened link with water scarcity has created a space, at the very root, for a greater role of policy in creating and ameliorating droughts. A simplistic 'natural' definition allows the State to forsake any responsibility and role in the complex causations behind the socioeconomic distress caused and instead take on the stance of a moral welfare entity. It also leads to a discourse of the powerlessness of the community and the complacent positioning of the State above society. But with a conceptualisation that acknowledges the socio-political causations of the problem, a wider space for socio-political solutions is also created.

The increased focus on water crisis in the country and its core association with agrarian distress has ironically led to the policy response of pushing further for irrigation extension and maximisation of our irrigation potential such that Irrigation Potential Created (IPC) should equal Irrigation Potential Utilised (IPU). Even the Integrated Watershed Management Programme (IWMP), which is the core drought-proofing and area development initiative of the central government, through its integration into the PMKSY, has become a means for irrigation extension. A water economy pushed to its limits during a normal rainfall year without incorporating water buffers can be adverse for a deficient rainfall year. With the significance of droughts now extending beyond core drought-prone areas to a wider spatial scope, the language of the National Water Policies has also shifted from 2002 to 2012. While the National Water Policy 1987 and 2002 focussed on making drought-prone areas less vulnerable to drought related problems, the National Water Policy 2012 stated that protecting all areas prone to droughts may not be practicable. Together these have created a precarious macro drought policy context of an increased intensification of the water economy with no space for water buffers. Rather there should be a shift away from a water-centric economic thrust and towards an increased emphasis on constant inbuilt preparedness and resilience from droughts.

[6] as a result of the 2015 Supreme Court Judgement

Figure 2.2 – The Present Policy Context



2.5 CENTRE-STATE RELATIONS: NEW CONTEXTS FOR THE STATE

The Centre-State relations with regard to drought policies have seen some prominent institutional shifts in recent years, particularly under the new regime at the centre. Since drought policies are a complex of centre and state policies, the centre-state relations are important in determining the strength of the policies. As most of the relevant sectors are state subjects, the intent of the state can determine and even override central policy intents. There has been a strengthening of the role of the centre on drought-relevant policies and sectors in recent years. And thus there is a sense of a push from the centre to orient state policies according to central government priorities. In this context, the natural alignment of central and state policy priorities is crucial for strengthening drought policies implemented at the state level.

New eligibility conditions and performance indicators have been set for gaining central funds for various centrally sponsored schemes such as PMKSY and RKVY[7]. These conditions orient funding priorities and paradigms of implementation for the state. For example, PMKSY funds are gained based on the following the conditions:

- Expenditure in water resource development for agriculture sector not less than base year expenditure (avg. of irrigation sector expenditure in prior three years)
- Additional weightage for levying water and electricity charges for irrigation
- Improvement in irrigation efficiency in the state.

The fixing of monitorable targets for performance, ranking of states on centre-determined sectoral performance variables[8] have brought about a stronger role of the centre with regard to many social and

[7] GoI (2014b) and GoI (2015b)
[8] PIB (2017)

economic sectors such as water, agriculture, and health. **Central regulatory bills** introduced for the water sector[9], central acts and institutional setup for disaster management (NDMA 2005), food security (NFSA 2013), rural employment (NREGA 2005) are legally binding on states with some levels of inbuilt flexibility . These assist in streamlining basic paradigms and perceptions of sectoral governance between centre and states limiting the ability of states to paradigmatically differ in their policies.

In 2016 the ***Rationalisation of Centrally Sponsored Schemes (CSS)*** was accepted by the central government[10]. Some of the major central drought policies are centrally sponsored schemes such as IWMP, ICDS, and PMKSY, thus relevant to the drought sector policies. The 14th Finance Commission increased the tax devolution from centre to states increasing the transfer of untied funds to the states. In lieu of this the centre-state funding pattern for most Centrally Sponsored Schemes has been reduced from 90:10 to 60:40 with an increased responsibility for states to allocate funds for these schemes. The RBI Study of State Budgets (2015) analysed that grants in aid to states have reduced by 0.8 percent of the GDP from 2014-15. Although higher devolution led to an increased share in central taxes by 0.5 percent of the GDP in 2015-16, the net impact of the changed pattern of funding is a decline of 0.3 percent in central transfer to states, with adverse implication for states' spending on social infrastructure[11]. Also, a number of CSS were delinked from central support entirely.

One of the schemes highly relevant for Telangana is the BRGF. Almost all districts of Telangana were identified as backward regions and thus benefitted from the flexible fund under BRGF. The delinking of this scheme is a negative change for the state. A positive shift for drought policy was that the rationalisation of CSS introduced a 25 percent flexifund[12] which may be used to customise schemes to the specific needs of the state. This would provide an opportunity for a drought-prone state to build in flexibility in schemes to meet the specific demands during a drought period, making institutions and infrastructures more drought-resilient.

States are now working under a more stringent and streamlined centre-state relationship with regard to many drought related policies particularly the water sector. With water coming to the forefront as a major issue emerging at a national level, the role of the central government in the control over this resource has increased. Through various tools of governance an increased central control is seen to be emerging. The state needs to function within the new limitations, boundaries and in-built flexibilities provided. In Telangana state there has been a long history of drought-proneness, agrarian distress, and backwardness as a result of water insecurity emanating from policy directions (see chapter 3). **The shift in national policy focus to agrarian distress and water stress makes the central policy thrusts more aligned to the policy issues and responses of Telangana**. This is an opportunity for the state to strengthen its drought, agriculture, and water sector initiatives further through additional support from the central level policy.

[9] GoI (2016a) and GoI (2016b)
[10] PIB (2016a)
[11] RBI (2015) and RBI (2016)
[12] GoI (2016d)

3| MAKING OF THE STATE AND VULNERABILITY TO DROUGHT

The creation of the Telangana state was the accumulation of decades of political discontent and blood of the people of the region. While government employees and students formed one wave of the movement, the rural masses are also an important section that fought both feudal and state oppression for several decades. To this end, Telangana has been described as an "internal colony" within Andhra Pradesh (Kannabiran 2010). The colonization has manifested on multiple fronts – through the linguistic and cultural as well as social, political, and economic hegemony of Andhra.

Linked to these was continuous deprivation and diversion of access to land and water, central to a dignified life for the largely rural Telangana region. Telangana's demand for a rightful share of water from the Krishna and Godavari rivers emerged only in the neoliberal era[13]– a dark time for rural Andhra Pradesh at large. While semi-arid conditions describe the non-coastal regions of the erstwhile combined state, the prevailing climatic conditions were drastically exacerbated in Telangana region due to brazen policy neglect. Further Rayalseema, which receives less annual rainfall than the Telangana , is described as a region more vulnerable to drought. However, the point made here is that in addition to physical factors, it is systematic neglect and diversion of development in the rural areas of Telangana that has uniquely contributed to its vulnerability to drought[14].

3.1 GENERAL BACKGROUND TO THE TELANGANA MOVEMENT

Congress's 1949 'JVP Committee, set up to look into the case of a separate Andhra state, emerged with some important statements regarding Telangana that give insight into the public opinion. "[I]t noted that the inhabitants of this region[15] felt that if Vishalandhra was created they would not get adequate consideration in this larger state (…) and they would be swamped by the more advanced people of coastal areas who would exploit all the jobs and other resources" (Nag 2011; pg. 38). Furthermore, they stated that "a separate Telangana could well be a stable and viable unit" but that "public opinion in Telangana has still to crystallize itself" (ibid.).

These statements continued to hold relevance, for even as the movement ebbed and flowed after 1969, the rise of the Telangana identity grew over time, connecting language and culture with lives and livelihood[16]. The leadership of the TRS in 2004 and the spread of Joint Action Committees throughout various sections of society were able to mobilize based on the one point agenda of establishing a separate state. In the last few years before state creation, the movement saw a shift in its articulation from "the 'facts and figures' of underdevelopment" to "more deeply political questions of self-respect" (ibid.). Both historical neglect and self-respect are interlinked as can be seen with regard to the politics of water. The current

[13]In 2006, it is stated that "distorted irrigation development has been central to the recent separatist movement in the state" (Reddy 2006; pg. 4613). An earlier example is that of the 1990 Jalasadhana Samithi (JSS) in Nalgonda district to agitate against the government's delay in building a canal from the Srisailam reservoir for drinking and irrigation needs (Simhadri 1997). The 2004 Jalayagnam irrigation projects were a response to the discontent, however it is also discussed how Telanganaites felt that Chief Minister YSR was diverting the Krishna water to Rayalseema with costly and power-intensive lift projects (Nag 2010; pg 82-83).

[14] "The demand for Telangana, far from denying deprivations elsewhere, juxtaposes state formation with the opening up of possibilities for more equitable development in the Andhra region." (Kannabiran *et. al.* 2010; pg. 70)

[15] The region referred to are the Telugu speaking areas of the Hyderabad state, as it additionally included Kannada and Marathi speaking areas.

[16] pg. 70, Kannabiran *et. al.* 2010

government's Finance Minister stated "with the formation of our own State, we have gained control over our water for irrigation, resources and employment – *Neellu, Nidhulu* and *Niyamakalu*"[17].

3.2 RESOURCE VULNERABILITY DUE TO NEGLECT

3.2.1 Geographical/ Historical Conditions

Telangana state has inherited the legacy of neglect through the dominance of Coastal Andhra and Rayalseema centric policies/politicians as well as a rampant extractive contractor class[18]. The geographical and historical preconditions also play into this context.

While the Godavari, Krishna, Manjira, and Musi rivers flow through the region, the commonly expressed sentiment in Telangana is that "there is neither water to drink nor water for cultivation" (Kannabiran *et. al.* 2010; pg. 71). G Haragopal points out that because the river water flows from Telangana to Andhra region, a combined Andhra State was desired.

Even before this desire to retain the physical geography within the political one of the erstwhile combined state, the delta districts of Coastal Andhra had received initial irrigation development at the hands of the East India Company. This paved the way for agricultural surplus leading to the formation of an outwardly spreading entrepreneurial class. The landlocked region of Telangana on the other hand, was characterized by a cruel system of resource extraction and human oppression[19] especially in the rural areas – heavy land taxes, *vetti* (forced labour), and exactions by officers[20]. While the aim here is not to present Coastal Andhra and Telangana in a binary, the level of development at the time of state formation provides insight to the strong sentiments for a separate Telangana state as well as the current pattern of uneven development.

3.2.2 Water-centric Neglect

Evidence of policy neglect and failure towards the Telangana region with respect to land and water has been well-cited in the literature (Vamsi 2004, Reddy 2006, Kannabiran *et. al.* 2010). Specifically the figures related to irrigation development, inter-region river water allocation, and farmer suicides explicate the history of gross underdevelopment.

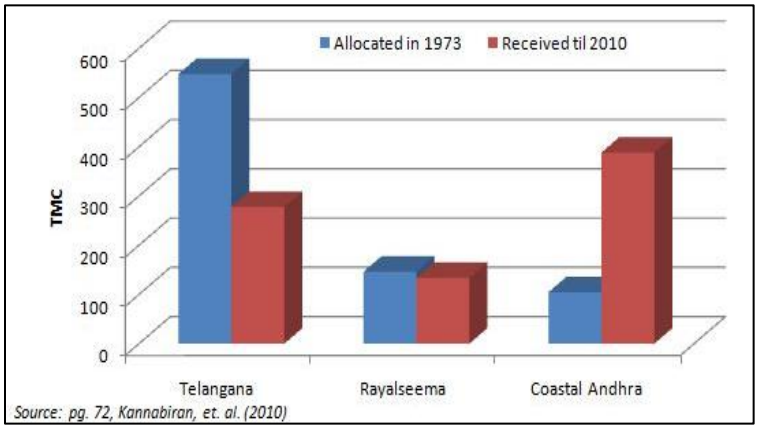
[17] Pg. 4, 2016 Telangana Budget Speech

[18] This class was "helped by leakages of huge resources that the state invested in irrigation, roads, public enterprises, mining and other infrastructural development" (Haragopal 2010 p. 54)

[19] Again, keeping aforementioned note 2 in mind, feudalism and oppression persisted in Andhra as well. There, the "high number of landless labourers was itself a consequence of the need for highly labour-intensive rice cultivation – sustained by assured water supply." (Haragopal 2010; p. 52)

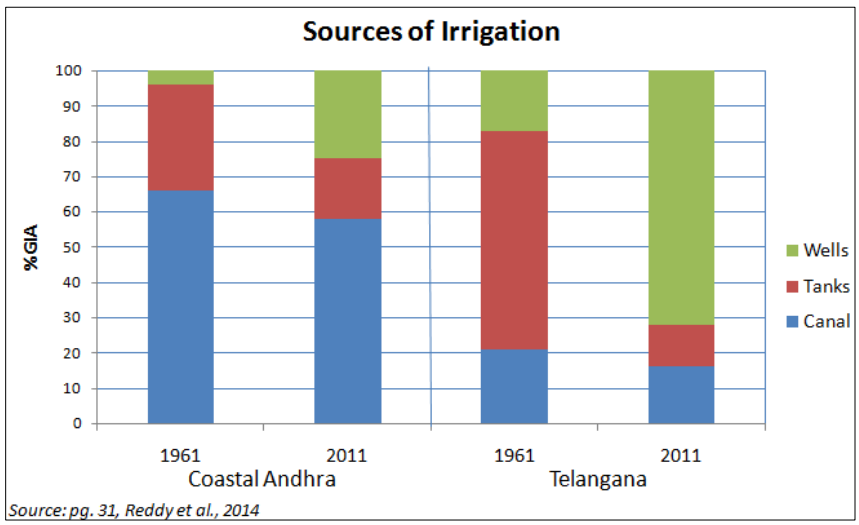
[20] Nag describes in great detail the despotic and feudal situation under the Nizam's rule. However, in a recent paper, two different positions on feudalism in Telangana are described. "The pro-Andhra (united Andhra) faction believes that feudalism is the most important reason behind the backwardness of Telangana, while the pro-Telangana faction believes that feudalism in Telangana is not very different from the rest of the country. They claim that, as a matter of fact, feudal tendency in coastal Andhra is greater than in Telangana." (Agrawal 2017; p.49).

Figure 3.1 – Distribution of Krishna River Waters in unified state of Andhra Pradesh



Development of Borewell Dependency: The hegemony of borewells reflects how "planned policies and budgets have deprived Telangana of its rights to maintain its traditional water structures"[21]. Pump-set and electricity dependent small and marginal farmers thus characterize the nature of agriculture in Telangana, and the ensuing failures of the borewells are seen to accompany both indebtedness and suicide among farmers.

Figure 3.2 – Trends in Patterns of Irrigation Sources in Coastal AP and Telangana Region in Unified AP



Denied Lift Irrigation Needed for Green Revolution: After generating agricultural surplus in coastal Andhra, "Subsequent ruling classes/castes of Andhra manipulated the irrigation planning process to the advantage of their region at the cost of Telangana"[22]. The Green Revolution was designed for the coastal areas, whereas the "naturally endowed area of Telangana was discriminated, dominated and denied its legitimate resources"[23] and irrigation especially deteriorated. In the context of central and state government policies, the "serious impact of reduction of critically important forms of public expenditure, is, for

[21] pg. 70, Kannabiran *et. al.* 2010
[22] Pg. 406, Venkatesh 2012.
[23] ibid

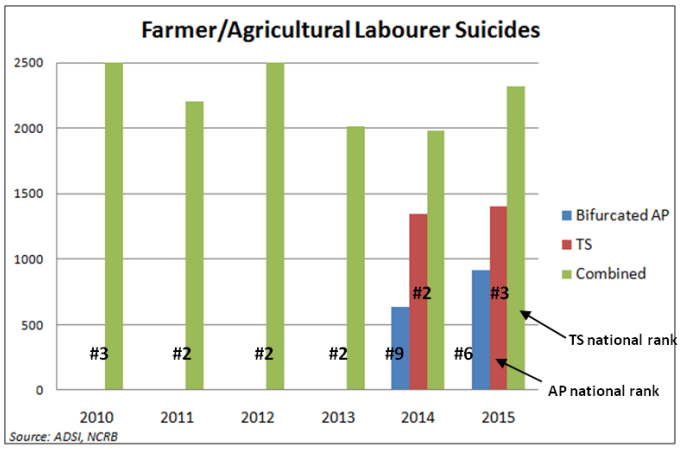
example, shown through the withdrawal of state support for lifting water to higher locations (Kalle & Kasi 2016)"[24]. While the author does not discuss Telangana per se, the topography of the region as previously discussed reveals that lift irrigation schemes are a distinct requirement for irrigating Telangana. Divestment from these schemes thus indicates neglect.

Discriminatory Funds for Major and Medium Irrigation: The Jalayagnam fund allocation to Telangana was way behind Coastal Andhra and Rayalseema, and thus the region remains drought-prone as agriculture here "became the victim of political domination and bureaucratic manipulation"[25]. As described by Nag, these irrigation projects were designed to benefit Rayalseema, thus angering the people of Telangana, who required expensive lift projects.

3.2.3 Agrarian Crisis and Neglect

One of the gravest evidences of neglect is the agrarian crisis in Telangana – one that has only deepenend with the particularly aggressive neoliberal policies of the erstwhile AP government. Chandrababu Naidu vigorously promoted state divestment from agriculture[26], which has been noted to have further intensified rural distress. The inheritance of a differentiated agrarian crisis in the new state can be seen through a recent study[27] commissioned by the Department of Agriculture, Cooperation & Farmers' Welfare. Of all the states surveyed, only the Telangana sample reported both that the "lack of access to irrigation water" as well as "failure of rainfall/drought"[28] as the main farming-related cause of the suicide of their family member[29]. For the Andhra Pradesh sample, the same causes were reported far less commonly[30]. The difference in these figures points to differential condition of resource development over the years.

Fig 3.3 – Agrarian distress in Telangana: Ranking of State in Farmer Suicides



[24] Pg. 197, Vadity, 2017.
[25] Pg. 407, Venkatesh 2012.
[26] In addition, privatization of Water User Associations (WUAs), change in cropping pattern which reduced fodder supply, and replacement of drought-adapted livestock with high-yielding breeds were policy decisions in line with neoliberal development (Kannabiran *et. al.* 2010).
[27] Manjunatha and Ramappa, 2017. The survey was carried out in 13 states with high number of suicide cases. The Telangana sample consisted of 50 suicide victim households in 45 villages in 15 mandals of 2 districts (having the highest number of suicides cases overall).
[28] both farming-related causes were reported in 96 percent of the sample in 2014, 90 percent in 2015
[29] Also, 91 percent of these victim households surveyed in Telangana used groundwater as a major source of irrigation.
[30] 60 percent and 37 percent of the sample in 2014 and 2015, respectively, reported "lack of access to irrigation water"; whereas "failure of rainfall/drought" was reported by 67 percent and 33 percent of the sample for the same respective years

3.2.4 Adivasi Neglect, A Colony within a Colony

While the discussion of water is central to both the Telangana movement and vulnerability to drought, the exploitation and appropriate of natural resources is also directly related to the struggles adivasis in the region have faced for decades. Kannabiran *et. al.* (2010) state that "If Telangana is an internal colony of Andhra Pradesh, the adivasis of Telangana articulate how they suffer from multiple displacements and forms of colonization by the so-called development projects such as open cast coal mines, proposed iron ore mines, paper mills, cement factories, heavy water plants, and of course, dams"[31]. There has been continuous land alienation since the 1940s despite legislation to prevent usurpation of tribal lands, with the tribals in Schedule V areas barely 10 percent of the total ST population in the state[32]. Under combined state rule, the Andhra Pradesh Scheduled Areas Land Transfer Regulation Act (1970) and the Forest Rights Act (2006) have not been properly implemented.

Rather 'tribal areas' since the 1970s have been discussed in the budget speeches of the erstwhile state in conjunction with 'backward' and 'drought-prone' areas – with sequential thrusts for dryland agriculture and minor irrigation, coffee plantations and eco-tourism, and various welfare measures. The striking shift is in the budget speeches of the new Telangana state, which aside from mentioning the token welfare measures, focus only on converting tribal *thandas* into panchayats[33] as well as the feasibility of assigning ST status to particular groups. The tribal identity is not central to state formation as it was in the case of Jharkhand, yet they are a group vulnerable to misappropriation in a similar vein as Telangana did under Vishalandhra. Adivasis are a diverse group of various communities, many migrating from other states, fleeing state persecution, and thus various ST groups are not equally treated by the government[34].The making of the Telangana state in the context of human-made drought vulnerability forces the consideration of such tribal groups and their rights over land, water, and forests.

3.3 DISCOURSES OF THE NEW STATE: THE NOVELTY THAT IS TELANGANA STATE

As opposed to the budget speeches and planning documents, the governor's addresses to the state legislature evince more of the thematic thrust behind the programmes and policies rather than just a technical reporting. Thus, a very noticeable aspect of each of the governor's speeches is the constant assertion of Telangana's uniqueness, innovation, and exceptionality with respect to the rest of India. In the context of development works, the specialness can be seen when recounting both successes and proclaiming future plans.

There is a tone of self-praise, how with even lack of officers the state has made "considerable progress". The successes can only be described as short term ones as Telangana is not old enough for that kind of assessment, yet the state's age only adds to the rarity and novelty of its success. For example, the power sector is one of the state's "greatest success stories", the solar policy "considered among the best in the country", and the industrial policy "as the best in the world".

---

[31] pg. 77, Kannabiran *et al.* 2010.

[32] Ibid.

[33] As of December 2016, the GoT has largely made its Panchayati Raj Act compliant with the PESA Act. It has not however been able to make progress with its State subject laws with the PESA Act. These laws include land acquisition, excise, forest produce, mines and minerals, agri produce market, and moneylending. http://pesadarpan.gov.in/

[34] "BD Sharma astutely described how the scheduling of certain tribes proved to be catastrophic for the concerned communities on the one hand, and led to cornering of benefits by some comparatively advanced groups on the other leading to acrimony and in-fighting." (Kannabiran *et. al.* 2010; pg. 81)

3.3.1 To Each Their Own

Another distinct aspect of new state is the way specific social groups are addressed. A division can be read between those groups who are stated to be 'owed' state support due to their role in the Telangana movement and those who are generally the 'weaker' socio-economic groups and recipients of welfare programmes. The former group consists of martyrs' families, journalists and lawyers, and government employees, playing a "crucial role in [the] struggle for statehood". The latter group, comprising SC, ST, BC, minorities, women, and poor Brahmins, are to be helped by the state through the standard set of programmes and policies.

Each of these sections of society is articulated differently which may have implications for the level of development that they are afforded. The governor discusses the aim of welfare for the SCs are to see that their "eyes are filled with sparks of ecstasy" which stands apart from STs and BCs which discussed by their presence in the population ("a sizeable portion of" and "the majority of", respectively). Minorities and women, on the other hand, are discussed more idealistically – minorities with reference to Telangana as a melting pot of various cultures, religions, beliefs, and languages; and women as half the population and the "bedrock of the institution of the family". The budget speeches of Telangana state also address various caste groups whose traditional occupations are dying out and thus proclaim its program to assist them regain the skills and tools they need to continue their livelihood.

Lastly, various welfare measures are seen as the tools through which the government reaches out to its citizens. These measures include land distribution, pensions, housing, and accident insurance; and the various beneficiaries include auto drivers, beedi workers, HIV/AIDS patients and the elderly.

3.3.2 Development with Welfare

The movement for a separate Telangana state took "shape in the womb of the neoliberal model of development"[35]. The planning documents of the new state, otherwise known as the annual "Socio-Economic Outlooks", chronicle the emerging state by tracking data and facts within the economy. While the neoliberal path is clearly being taken up, the vision for agriculture in two of these documents is addressed in 2014-15 with "sustainable growth" and the next year with "progress with distributive justice". The latter mention is striking only because 'distributive justice' was long since abandoned after the 80s Green Revolution took over followed by liberalization.

Similarly, the governor's addresses strive to do both development and welfare as twin processes within neoliberalism. To this end, the government has created enabling conditions for multinational corporations to do business, yet spends a relatively significant amount on social welfare schemes. Often the interests of big business comes at the expense of marginalized groups, however, Telangana is committed to seeing the benefit of both happen simultaneously.

This apparent contradiction between 'neoliberalism' and 'welfare' is less apparent with something like agrarian distress. Similar to previous governments' articulation, loan waivers are seen as a providing "a fresh hope" whereas to curb suicides, tax exemption and counselling are discussed. These are short-term, symptomatic measures which indicate that the neoliberal growth model will continue to be followed with this particular brand of welfare measures (e.g. loan waiver, tax exemption, counselling).

[35] Pg. 57, Haragopal 2010.

3.4 COMPARISONS TO INDIA AND ERSTWHILE ANDHRA PRADESH

3.4.1 Irrigation/ Water: The irrigation and water sector is extremely crucial for the development of the state, as has been made clear through the history of neglect of rural Telangana for decades. One lakh acres are to be provided irrigation facility in each assembly constituency, which is in line with the policy of the central government through PMKSY. Mission Bhagiratha has made a commitment to universal access to drinking water, thus a sharp break from previous AP state which focused on more localized drinking water projects or even the national level policy which does not include universality. Mission Kakatiya on the other hand, is not a sharp break as such, but similarly extends coverage to rejuvenate all the tanks in the state. Both signal a shift away from intensive borewell development which was the dominant trend during erstwhile AP.

3.4.1 Agriculture: While the state has yet to release a comprehensive agriculture policy, that various programmes initiated have been enough to garner national attention. Agriculture is described as a "growth engine" as well as "posed for revival, ending the agrarian distress that marked the past". Through crop colonies, input subsidies to enhance productivity per unit area, the creation of India's seed bowl, preventing illicit sales of fertilizers, a crop loan waiver, as well as irrigation projects for drought-proofing; the vision for agriculture seems to build upon making Telangana stand out for its innovation.

However, the neoliberal agenda as outlined in erstwhile Andhra's Vision 2020 document continues to find echoes in current Telangana state policy. This document has been criticized for failing to take account of "the rather crucial contributions of small-scale agriculture to India's living reality" and being "[g]rossly devoid of ground realities"[36], as it expects private investors to fund this vision of 'Swarna Andhra Pradesh'. While Telangana does not reproduce the document, it does envision the creation of a 'Bangaru Telangana' and has a thrust on commercial agriculture, for example, cotton – a crop which has noted to aggravate agrarian distress. The aim in Vision 2020 is to attain a 6 percent annual growth rate, which is something Telangana articulates as well. Furthermore, Telangana state continues erstwhile Andhra's policy of free electricity for farmers, expanding coverage from 7 to 24 hours as well as extending the central scheme PMFBY. The new agricultural policies as outlined above are means to continue with commercial and market-oriented agriculture.

3.4.2 Governance: To this end, the decentralizing governance measures that started in the late 90s with the stated aim of 'less quantity of governance leading to more quality of governance' seem to have eroded with the new state especially with regard to its centralized welfare measures and even the administering of MK and MB. Unlike Janambhoomi and Water User Associations which also see the infiltration of a contractor class, there are not many community-based structures or institutions in the new state. The proposed Telangana programmes refer to strengthening existing institutions of local representatives, that is MLA/MLCs and Gram Panchayats. Thus combing its policy as well governance measures, there is evidence to a much more centralized state.

Taking this centralized governance as a base for understanding the past 3-4 years of new statehood allows for an interrogation of what a centralized state approach would mean for drought policy. Furthermore, what does the focus on centralized welfare measures mean for building resilience of vulnerable sections? These are genuine questions with which we analyze the various programs and schemes of the state.

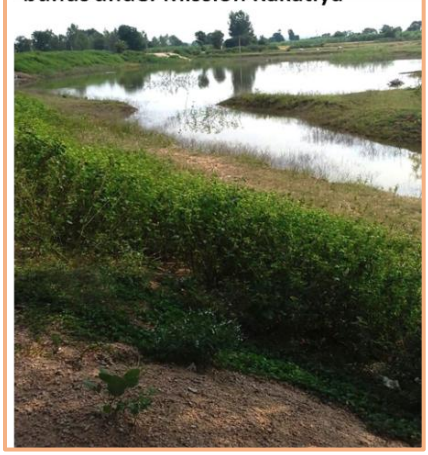
[36] Pg. 198, Vaditya 2017

4 | DROUGHT PROOFING TELANGANA: CONCEPTUAL ISSUES

With drought proneness and backwardness being central to Telangana's identity and discourse[37], it could be expected that tackling droughts would be central to the new state's policy priorities. While the draft Telangana Drought Manual 2016 has been formulated and the State Disaster Management Authority was constituted in 2015[38], neither a dedicated government website to the new authority, nor readily available documents such SDMP and DDMPs are available in the public forum. The Supreme Court in a writ petition in May 2017 found that Telangana had not yet formulated a State Disaster Management Plan. The draft Telangana Drought Manual is in accordance with the National Drought Manual 2009, butgiven the significant changes in discourse and indicators for drought declaration since then in the new National Drought Manual 2016, the Telangana Drought Manual is in need of an update.

The Drought sector of Telangana, in stated terms, emanates primarily from the water and agriculture sector. In the initial years of its formation the discourse of the state around droughts has been primarily with regard to the water sector i.e. tank rejuvenation and extension of surface water irrigation potential. Mission Kakatiya and the development and extension of surface water irrigation through investments in lift irrigation systems are identified as the core drought policies of the new Telangana state. Telangana has embarked on a path for the water sector that, at least in policy, aims to move the focus away from depleting groundwater to surface water. This core intent is also seen in the budgeting priorities of the state.

Desilting and strengthening of bunds under Mission Kakatiya



4.1 BUDGETARY DIRECTIONS

Fig 4.1 shows the drastic increase in investment by the state in the water sector. This trend is a significant deviation from the declining trend seen in the rest of the country. This is also a divergence from the rapidly declining trend that was seen in the unified Andhra Pradesh state post 2009. With regard to the other sectors, a comparison of intent of budgetary prioritisation for relevant drought sectors (Table 4.1) shows that compared to all states, Telangana has a particularly pronounced budgetary focus on the welfare of backward classes and social security. It has also invested a higher percentage of its budget outlay on nutrition. However, with regard to rural development, medical and public health, its relative focus is lesser than that of all states put together. Having said that, it is prudent to acknowledge that the budgetary directions of a new state are still in early phases and a trend analysis would not be robust, given that the most recent years are still estimates. However, compared to other states it does show a relative direction with regard to its selected priorities.

[37] RS (2011)
[38] GoT (2015)

Figure 4.1 – Budgetary Directions of the Water Sector in All States, AP, and Telangana

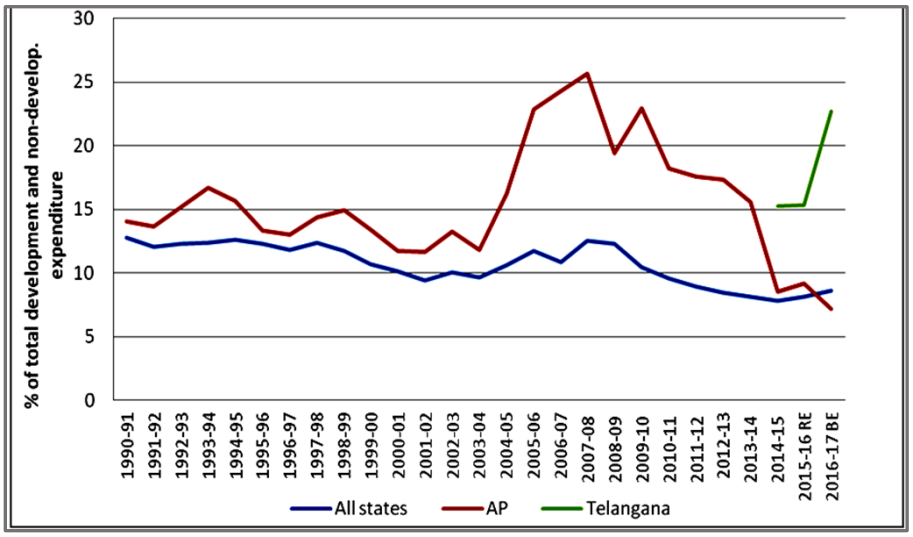


Table 4.1 – Comparison of Budgetary Allocation for Drought Relevant Sectors (% of Outlay)

State	Sector	2014-15 (Accounts)	2015-16 (RE)	2016-17 (BE)
All states	Agriculture and Allied Activities	7.14	7.25	6.78
Telangana		9.95	7.95	6.33
All states	Rural Development	7.09	7.80	8.14
Telangana		6.09	6.19	5.34
All states	Welfare of SC, ST and Other Backward Classes AND Social Security	7.65	8.65	8.53
Telangana		10.08	13.69	13.11
All states	Nutrition	1.27	1.22	1.14
Telangana		2.06	2.33	2.66
All states	Medical and Public Health	5.06	5.32	5.38
Telangana		3.21	3.38	4.04

4.2 IRRIGATION AS DROUGHT PROOFING: CONCEPTUAL ISSUES FOR TELANGANA

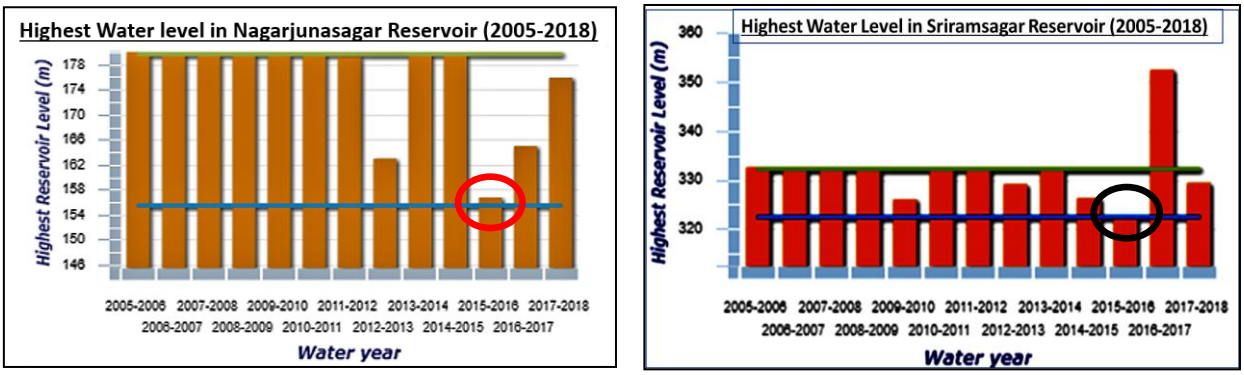
The focus of Telangana policies with regard to drought proofing has followed the overarching paradigm of *irrigation as drought proofing*. For a state like Telangana, irrigation extension, through groundwater or surface water, as the sole or prime drought proofing policy poses limitations.

4.2.1 Rainfed water systems

Telangana has hard rock crystalline aquifers that have limited groundwater storage potential and are highly dependent on annual rainfall recharge. However, a shift from groundwater to surface water irrigation does not necessarily ensure drought proofing either. Figure 2.3 gives examples of water levels in two surface water reservoirs of Telangana. It shows that during a major drought year of 2015 the water levels in these reservoirs are at or below minimum draw down levels making them unviable for widespread water provision for irrigation purposes. With regard to tank irrigation Figure 2.4 shows the impact of a drought on surface water bodies based on an analysis of area under water bodies in Kamareddy district from

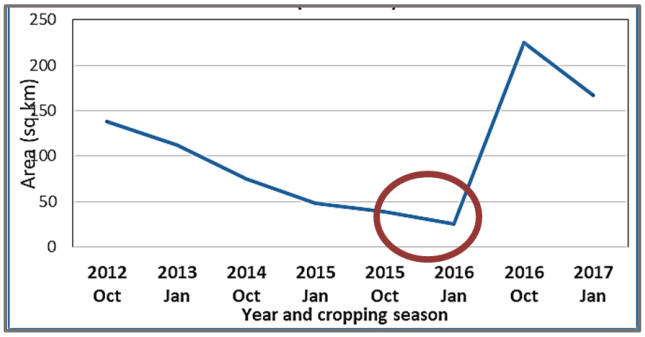
satellite data. In such a geographical context the distinction between rainfed and irrigated areas with regard to drought-proofing is precarious.

Figure – 4.2 Water Levels, Full Reservoir Levels and Minimum Drawdown Levels



Source: WRIS

Figure 4.3 – Area under Water Bodies in Kamareddy District of Telangana



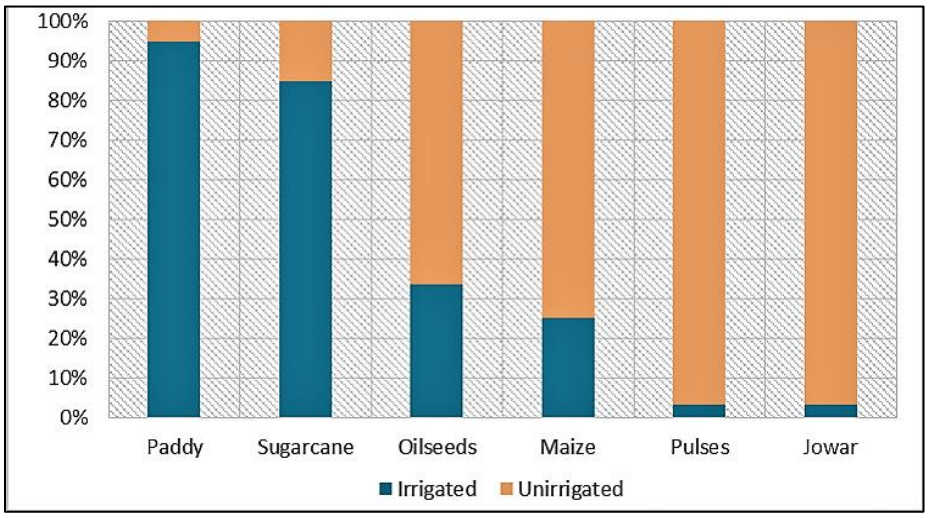
Source: Computed from LISS III images 2012, 2014, 2015, 2016

4.2.2 Discourses of Rainfed Areas versus Irrigated Areas

In the policy framework building drought resilience through water and soil conservation and management, integrated farming systems, crop-saving irrigation, off farm livelihoods and allied sectors, drought resilient seeds are all discourses promoted for rainfed/dryland farming. For example, the National Mission for Oilseeds and Oil Palm, National Technology Mission for Promotion of Pulses, Rainfed Area Development Programme and Integrated Watershed Management Programme, are all designed and promoted for rainfed agriculture. The policy discourse of irrigated agriculture tends to be that of water and input intensive high productivity agriculture. When increased areas are brought under irrigation what impact will it have on the farming systems practiced? Will it move towards a more water intensive cropping system?

In a region where irrigation sources themselves are highly sensitive to droughts such irrigation extension with an inherent focus on more water intensive cropping and farming systems without the demand management that is built into the rainfed area agriculture policy, **this irrigation extension could increase drought vulnerability**. Figure 4.4 shows that with access to irrigation more water intensive crops are grown. Thus irrigation extension without demand management can in effect undo the benefits of increased water availability.

Figure 4.4 – Major Crops Grown with Irrigation Availability in Telangana



Source: computed from Agriculture Census 2010-11

Beyond Rainfall Failure to Rainfall Sensitivity: Field insight on Farmer decision making and vulnerability

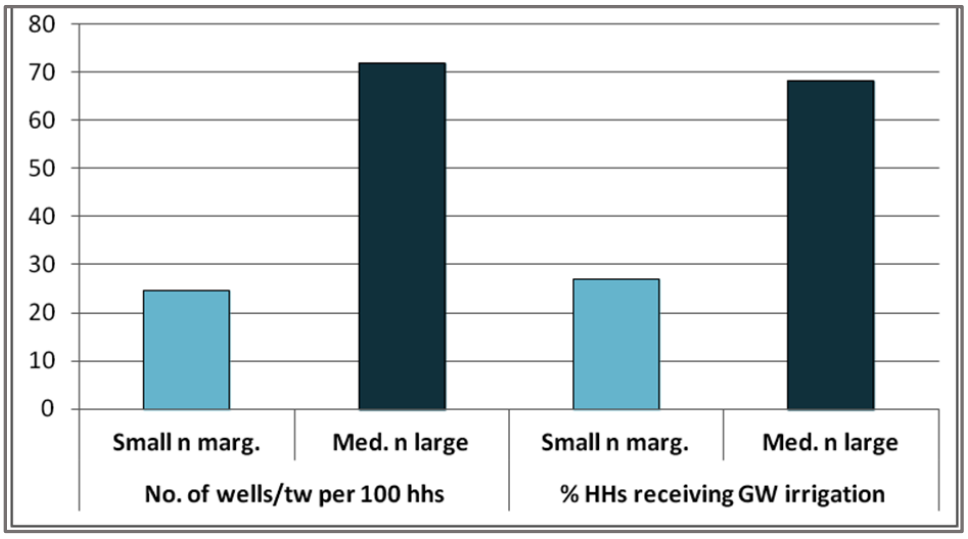
Mainstream thinking has limited drought management in agriculture to promoting less water intensive commercial crops such as oilseeds in rainfed areas. However, narratives and interviews from field survey in Kamareddy brought out that with availability of irrigation farmers preferred to cultivate paddy and sugarcane for reasons of climate risk and sensitivity. Soya bean, an oilseed crop promoted in rainfed areas, was said to be highly sensitive to ill-timed rainfall. Rainfall during the soya flowering season, in the month of August, can cause heavy crop damage. Similarly, for maize, an ill-timed rain can reduce the quality of the crop output. On the other hand paddy and sugarcane, while requiring assured irrigation, were touted as being more resilient to rainfall fluctuations and dry spells within the season. This poses an additional challenge to demand management through dryland or water-saving crops.

Unlike the mainstream discourses of drought as a reduction in quantum of rainfall, farmers were found to be more sensitive to timing, duration, and distribution of rainfall while making cropping decisions. Thus, **when irrigation is seen as an assured means of drought-proofing, one needs to take into consideration the demand for water as well as farmer decision making**. Promoting water-saving but climate sensitive market oriented crops may increase farm distress and vulnerability in the guise of drought-proofing.

4.2.3 Resource Augmentation and Equitable Access: Another critique of *Irrigation as Drought Proofing* is that it is a structural and resource centric approach that is blind to issues of access to the augmented resource. while the need to recharge and maximise water resources available in drought-prone areas is essential, Jairath and Ballabh (2008) critique this focus on the grounds that water augmentation as drought-proofing emanates from a dominant conceptualisation of droughts as a physical water scarcity, which takes away focus from the issue of discriminatory and unequal access to and control of the water resources harnessed. The fact that reduced water availability is differentially experienced by diverse segments of the community even during non-drought years and the role that inherent existing water insecurities play in creating heightened water scarcities during a drought is lost in such structural approaches to drought proofing. All major drought-proofing policies and programmes including

MNREGS, IWMP, Mission Kakatiya are such structural measures. For instance, focus of drought proofing a region through groundwater recharge does not take into account the fact that groundwater is a source of irrigation accessed mostly by medium and larger landed farmers, thus excluding the small and marginal from the ambit of its benefits. Also, given that Telangana state has 85.86 percent[39] small and marginal farmers this is particularly relevant.

Figure 4.5 – Inequality in access to groundwater in Telangana (2010-11)



Source: Agriculture Census 2010-11

The IWMP has over the years of critique acknowledged and included with particular focus the development of the landless and women in its purview. However, a similar acknowledgement of the inequality in access to the managed resource within the landed class has not been incorporated. As a result the small and marginal farmers are excluded from the benefits of the policy. With regard to Mission Kakatiya, field insights from Issaipet and Dharmaraopet villages suggested that mostly the higher castes and large farmers owned land close to and downstream of tanks and benefitted the most from tank rejuvenation while lower caste households owned lands either upstream of the tank or at a significant distance from the tank. Also since most did not own borewells (Chapter 5) they could not benefit from the increased groundwater recharge.

4.3 DRINKING WATER: A PARADIGM SHIFT

In the water sector policy the focus on drought management has primarily been linked to irrigation management. The policy for drinking water, particularly for rural areas has entirely been focussed on structural measures based on groundwater based structures and treatment of water. However, the aspect of access has not been assessed critically and thus vulnerabilities in access to the resource have not been incorporated into policy. Even during a normal year there is vulnerability in water access. This vulnerability is further sharpened in the face of droughts. The following table shows that in Telangana even during non-drought years scarcities in household water access are felt, particularly in more urbanised districts. These would get further sharpened during a drought year. Drought resilience of drinking water cannot be developed unless this larger vulnerability, even during normal rainfall years, is understood and tackled.

[39] Agriculture Census 2010-11

Table 4.2 – Distress in Household Water Access during a Normal Year

District	% hhs reporting insufficient drinking and domestic water	% hhs using bottled water and other *(tanker, truck, cart with small drum, etc.)* as primary drinking water source
Mahbubnagar	58.84	35.93
Nalgonda	42.59	19.48
Adilabad	41.70	7.37
Hyderabad	35.76	11.65
Rangareddy	33.08	46.3
Nizamabad	17.33	9.35
Medak	15.52	1.73
Warangal	15.27	40.76
Karimnagar	1.80	7.99
Khammam	0.46	3.64
TELANGANA	**28.02**	**18.06**

Source: NSSO 69th Round, 2012

Rural drinking water sector has almost entirely been based in groundwater resources. The precarity of groundwater resources in crystalline aquifers as in Telangana, particularly for drinking water, is not taken into consideration. The umbrella treatment of water access for different resource regimes is questionable.

In unified AP state in the period between 1994 and 2004 a phase of liberalisation emerged strongly. This period, with regard to the water sector, is marked with directions of shifting priorities of water sector from irrigation to multisectoral water focus including drinking, industry, and recreation[40]. The National Water Policy 2002, and in line, the AP State Water Policy 2008 also prioritised drinking water. However, rural drinking water is mostly provisioned through groundwater, a resource which is highly informal and difficult to regulate, while urban water is provisioned through state regulated surface water reservoirs[41]. Thus the focus and priority on drinking water in policy can be met and ensured by the state mainly for urban areas. This period also saw a major focus on rural water conservation and recharge[42] through participatory modes[43] to improve and ensure water availability in rural areas for irrigation and drinking water. Thus while the state focus of resource increased on non-rural water uses, the responsibility for rural water provision was shifted to the civil society and the community.

In the face of this trend, Telangana's policy of state provision of drinking water through state regulated surface water reservoirs (Mission Bhagiratha) is a paradigm shift in rural Drinking water provision from drought vulnerable GW sources to universal SW provision which can be prioritized and ensured by the state. However, field insights show that RO water (both private and PPP) have proliferated in the villages and "awareness" has been built regarding the superior quality and safety of RO water as against panchayat water. This behavioural aspect will offer a challenge to the uptake of Mission Bhagiratha for drinking water use.

[40] AP Water Vision 2003, GoAP
[41] AP state Budget speeches, Five Year Plan documents on drinking water
[42] Neeru Meeru, 2003 and AP Micro Irrigation Programme 2001
[43] GoAP (1997): APFMIS

5 | NEW POLICIES OF THE TELANGANA STATE

5.1 APPROACH TO UNDERSTANDING THE POLICY

As can be seen from Chapter 3, the politics of the state formation as articulated through the history of the Telangana movement have indeed fed into the new state's current policies. However, addressing past neglect does not mean any fundamental shifts from the kind of development that the new state's policies are following. Furthermore, the transition to more centralized governance bears understanding, specifically as the drought related questions of resilience and inequality are to be tackled through the various schemes and programs.

Drought has been already discussed as complicated phenomenon to study because it is an interdisciplinary field covering many sectors and various governmental departments – each with a slightly different take on drought. Therefore, the approach to understanding the existing 'drought policy' in absence of a single document is done through examining the key sectors of **water**, **agriculture**, **food security**, and **rural livelihood** and trying to assess the intent within each. Again, these individual sectors themselves do not have singular, cohesive policy documents as of yet, so the intent has been triangulated through other relevant government documents.

After putting forth the intent within each sector, the trajectory of each is traced by assessing the departure in intent from both the previous combined AP state as well the current policies of the central government. Finally, where possible, critiques of the existing policies as well as discernable implementation gaps (as gleaned from field interviews) will be discussed within each sector. Understanding these aspects will elucidate Telangana's rural development path and what it implies for both building drought resilience as well as ensuring social access and equity.

5.2 SECTORAL ASSESSMENT

5.2.1 Water

The major programs that comprise the water sector in Telangana are two flagships of **Mission Kakatiya** (MK) and **Mission Bhagiratha** (MB) as well as continuing programs of Micro Irrigation (previously APMIP, now **TSMIP**[44]), as well as IWMP, **APFMIS**, and APWALTA. The latter two are more regulatory frameworks that arose during combined Andhra state, yet are still present (even if not functional) in the current Telangana state. Because MK and MB are the main water related flagships of a state that had been reeling under water neglect, they represent the state's articulation of their water sector planning. In addition, the state has a target of irrigating 1 crore acres by redesigning existing major and medium irrigation works in conjunction with PMKSY.

Intent

The intent behind Mission Bhagiratha, Mission Kakatiya, as well as the emphasis on major and medium irrigation is gleaned from various government documents that outline each of the programs. For the former, the state sees its role in providing drinking water as one of ensuring **universal access**, and in that **minimizing the rural-urban disparity** through its shift away from groundwater development. Mission Kakatiya intends to benefit local contractors in undertaking **tank rejuvenation works** as well as to promote allied rural livelihoods of fisheries and toddy tapping. Lift schemes which are uniquely essential for Telangana are given focus, through which **irrigation coverage** would expand.

[44] Technically TSMIP falls under Horticulture & Sericulture Department, however it is discussed here as a component of the water sector.

Comparisons

1. Scaling Up – Ensuring Universal Coverage

There is a mixture of continuity and departures from the erstwhile combined state with regards to the 'changes' in the water sector. Mission Kakatiya's focus on tanks is not new, only is its' scale. Past programs like Neeru-Meeru and Indiramma Cheruvu which worked in a more narrow approach but engaged in similar tasks of de-silting and asset construction. Mission Kakatiya's departure from these programs lies in its **universal coverage of tanks** in the state, as well as its expanded scope through linking tanks with lift irrigation projects and rural livelihoods as mentioned above.

Mission Bhagiratha departs most significantly from both the previous state and current national policy based on its intent of **universal access** both in terms of covering all households as well as replacing any other existing protected water supply schemes. Universal provision also includes rural and urban institutional supply within its ambit (previously APRWSS only included rural institutions). The mission specifically identifies the **allocation based on location** – 100 for rural, 135 lpcd for peri-urban, and 150 lpcd for municipal corporation areas.

TSMIP continues on from APMIP, with one main modification; the **subsidy** provided under this scheme is now graded by social group as follows:

Figure 5.1 – Excerpt from Government Order regarding TSMIP

I. "All category farmers in revenue village are eligible for Micro Irrigation Systems / Drip up to maximum of 5 ha irrespective of their economic status:
   - All SC/ST Farmers are eligible for 100% subsidy.
   - All SF/MF Farmers are eligible for 90% subsidy.
   - All Other Farmers are eligible for 80% subsidy".

Source: G.O. M.S. No. 28, 9-12-2014, Agriculture and Cooperation Department, GoT

2. Addressing Needs – Surface Sources and Multi Purposes

The ertwshile combined state aligned with national policies (RGDWSM, NRDWP) under which groundwater was to be the major source of rural drinking water.Historically, the division of groundwater for rural use and surface water for urban use has resulted in skewed access and regulation. Mission Bhagiratha shifts focus **away from groundwater**, the overexploitation of which has been noted to have been one of the drivers of Telangana's distress.

Under previous state water policy, Telangana did not get its due share and whatever water was allocated was used only for irrigation and power, as well as a small portion for urban drinking water for the twin cities. Now, **multi-purposes** have been identified and surface water allocation is to be provided for drinking and industrial purposes, as well as irrigation and power generation.

3. Management – Institutional Bodies and Private Players

In terms of **maintenance and operationalisation** of these schemes, there is both departure and continuity from the past state schemes. The APFMIS instituted WUAs as a regulatory body for overall functioning and distribution of canal water and this provision has been sanctioned in the new state. Mission Kakatiya, as well as its predecessors do not have any such institutionalized bodies; Bhagiratha on the other had does include the provision of constitutional committees.

The continuation of the AP State Water Policy 2008 is seen in both Missions whereby **non-state actors** participate in water management through theoutsourcing of various tasks private contractors.

Critiques and Implementation Gaps

1. Mission Bhagiratha

More than a critique is a future concern of cost-recovery for an ambitious scheme like MB. As 10 percent of its water supply is to be allocated to industry, it has been stated[45] that **cost recovery** would happen through this sector however there remains a grey area as to whether individual user charges would be instituted. Furthermore, a major critique of the universal access is the question of **demand management**, which raises the inherent social inequalities with respect to differential water use across classes and regions. While lpcd allocation based on rural, urban, and peri-urban are identified, this equal allocation regardless of socio-economic classes within these regions raises concerns of both sustainability and equity. Mechanisms need to be put in place to ensure that equity in supply is met in operational terms.

2. Mission Kakatiya

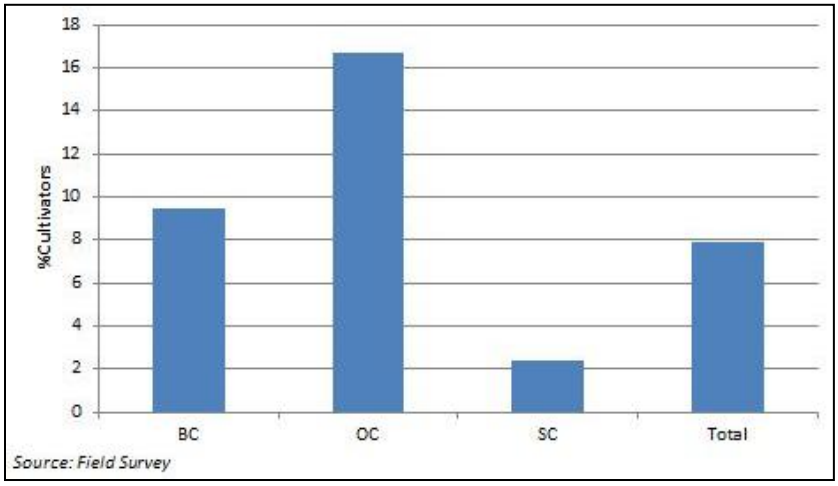
Mission Kakatiya is operating in a mission mode comprising of 4 phases of tank works. There is a lack of clarity about **maintenance and management**, specifically the lack of user-based associations such as WUAs . As stated before, contactors are the only players involved and are accountable only for the stipulated tender period. From the field survey in Kamareddy, an important concern was raised with respect to equity as the upper caste lands were located closer to the tanks. Another technical aspect relates to rainfall, as tanks do not get filled when it is deficient. Furthermore it was seen that tanks under Mission Kakatiya were not having field channels cleared.

One current snag that seems to have been present since even before 2014 is the stagnation in APFMIS. Though the provision has been made by the Telangana government for **WUA elections** to be held, they have not yet happened for a number of years.

3. Micro Irrigation

Lastly, it was seen that promotion of drip irrigation was undertaken by private sugar factories in Kamareddy as a way to increase production. A major concern however was the **benefit of subsidy being erased due to the** GST amount applied to the original value of the drip system. Evidence of this can be seen below in the detail of the "Bill of Quantities for Drip Irrigation System (TSMIP Division)" issued by a private Hyderabad-based irrigation company to a farmer in Domakunda mandal. In this case, the 'Total Farmer Cost' is three times the amount of the 'Farmer Share' due to the addition of 'Extra GST'[46].

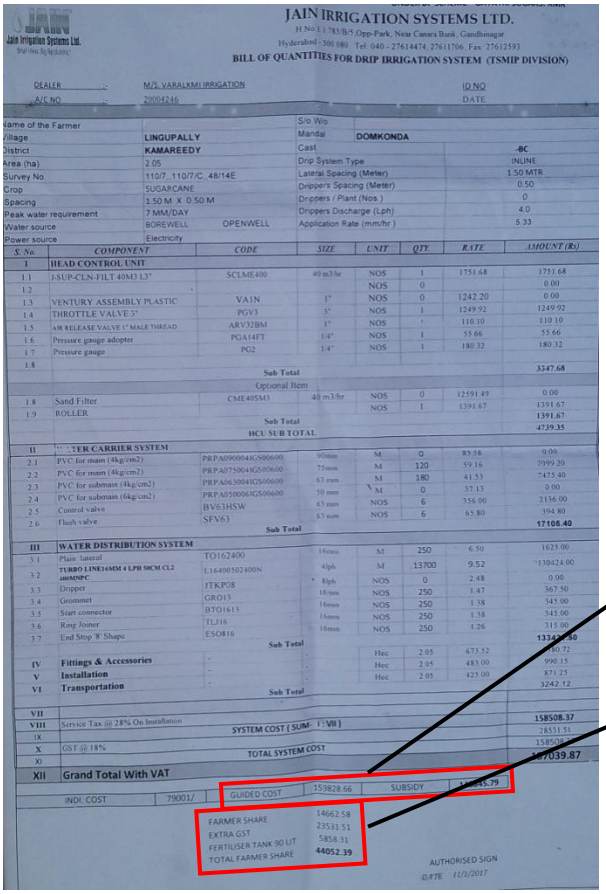
Figure 5.2 – Percentage of Cultivators who have Installed either Drip or Sprinkler Irrigation



[45] KTR's speech to Legislative Assembly, 20 December 2016

[46] This inflated farmer cost is such even after a recent government order which offers a tax reimbursement of up to Rs. 5,000 as "relief" (G.O. M.S. No. 40, 28-08-2017, Agriculture and Cooperation Department, GoT)

Figure 5.2 – Detail of the "Bill of Quantities for Drip Irrigation System (TSMIP Division)"



JAIN IRRIGATION SYSTEMS LTD.

BILL OF QUANTITIES FOR DRIP IRRIGATION SYSTEM (TSMIP DIVISION)

DEALER	:	M/S. VARALXMI IRRIGATION				ID NO		
A/C NO	:	29004246				DATE		
Name of the Farmer				S/o W/o				
Village		LINGUPALLY		Mandal		DOMKONDA		
District		KAMAREEDY		Cast			-BC	
Area (ha)		2.05		Drip System Type			INLINE	
Survey No.		110/7, 110/7/C, 48/14E		Lateral Spacing (Meter)			1.50 MTR	
Crop		SUGARCANE		Drippers Spacing (Meter)			0.50	
Spacing		1.50 M X 0.50 M		Drippers / Plant (Nos.)			0	
Peak water requirement		7 MM/DAY		Drippers Discharge (Lph)			4.0	
Water source		BOREWELL	OPENWELL	Application Rate (mm/hr.)			5.33	
Power source		Electricity						

S. No.	COMPONENT	CODE	SIZE	UNIT	QTY.	RATE	AMOUNT (Rs)
I	HEAD CONTROL UNIT						
1.1	I-SUP-CLN-FILT 40M3 L3"	SCLME400	40 m3/hr	NOS	1	1751.68	1751.68
1.2				NOS	0		0.00
1.3	VENTURY ASSEMBLY PLASTIC	VAIN	1"	NOS	0	1242.20	0.00
1.4	THROTTLE VALVE 3"	PGV3	3"	NOS	1	1249.92	1249.92
1.5	AIR RELEASE VALVE 1" MALE THREAD	ARV32BM	1"	NOS	1	110.10	110.10
1.6	Pressure gauge adopter	PGA14FT	1/4"	NOS	1	55.66	55.66
1.7	Pressure gauge	PG2	1/4"	NOS	1	180.32	180.32
1.8							
	Sub Total						3347.68
	Optional Item						
1.8	Sand Filter	CME40SM3	40 m3/hr	NOS	0	12591.49	0.00
1.9	ROLLER			NOS	1	1391.67	1391.67
	Sub Total						1391.67
	HCU SUB TOTAL						4739.35
II	WATER CARRIER SYSTEM						
2.1	PVC for main (4kg/cm2)	PRPA090004IGS00600	90mm	M	0	85.56	0.00
2.2	PVC for main (4kg/cm2)	PRPA075004IGS00600	75mm	M	120	59.16	7099.20
2.3	PVC for submain (4kg/cm2)	PRPA063004IGS00600	63 mm	M	180	41.53	7475.40
2.4	PVC for submain (6kg/cm2)	PRPA050006IGS00600	50 mm	M	0	37.13	0.00
2.5	Control valve	BV63HSW	63 mm	NOS	6	356.00	2136.00
2.6	Flush valve	SFV63	63 mm	NOS	6	65.80	394.80
	Sub Total						17105.40
III	WATER DISTRIBUTION SYSTEM						
3.1	Plain lateral	TO162400	16mm	M	250	6.50	1625.00
3.2	TURBO LINE16MM 4 LPH 50CM CL2 16MMPC	L16400502400N	4lph	M	13700	9.52	130424.00
3.3	Dripper	JTKP08	8lph	NOS	0	2.48	0.00
3.4	Grommet	GRO13	16mm	NOS	250	1.47	367.50
3.5	Start connector	BTO1613	16mm	NOS	250	1.38	345.00
3.6	Ring Joiner	TLJ16	16mm	NOS	250	1.38	345.00
3.7	End Stop '8' Shape	ESO816	16mm	NOS	250	1.26	315.00
	Sub Total						133421.50
IV	Fittings & Accessories			Hec	2.05	673.52	1380.72
V	Installation			Hec	2.05	483.00	990.15
VI	Transportation			Hec	2.05	425.00	871.25
	Sub Total						3242.12
VII							
VIII	Service Tax @ 28% On Installation						158508.37
	SYSTEM COST (SUM- I:VII)						78531.51
X	GST @ 18%						158508.37
	TOTAL SYSTEM COST						395039.87
XII	Grand Total With VAT						

INDL COST	79001/	GUIDED COST	159828.66
		SUBSIDY	143845.79
FARMER SHARE	14662.58		
EXTRA GST	23531.51		
FERTILISER TANK 90 LIT	5858.31		
TOTAL FARMER SHARE	44052.39		

AUTHORISED SIGN

DATE 11/1/2017

Guided Cost	159828.66
Subsidy	143845.79
Farmer Share	**14662.58**
Extra GST	23531.51
Fertiliser Tank	5858.31
Total Farmer Share	**44052.39**

Source: Field Survey.

Also, as gleaned from Kamareddy, **coverage of drip/sprinkler systems among SCs are the lowest** of the social groups surveyed. Thus, despite the government's intent to make these systems most accessible to SC, this benefit has yet to reach them in terms of a larger equity argument.

5.2.2 Agriculture

The agriculture sector in Telangana state has been described in the media as innovative and path-breaking, and indeed there is a **distinct package of programs**, many of which are still in the process of piloting and implementation. They include crop colonies, farm mechanization, seed bowl creation, input subsidies, 24/7 free electricity to farmers, marketing linkages, horticulture and polyhouse cultivation, drip irrigation subsidy, interest-free/pavala vaddi loans, and extension. In addition to these specific state level measures, are central programs of importance such as NMOOP, PMKSY and PMFBY/WBCIS which have salience for agro-climatic region such as Telangana. Furthermore, as Telangana has second highest cases of state-recognized farmer suicide deaths, the **impact of agrarian distress** is dealt by the state through a Crop Loan Waiver, as well as Crop Insurance and Marketing Intervention Fund. The current agricultural strategy of the central government, "**Doubling Farmers' Income**" is being articulated through the central government's committee reports which also have relevance for Telangana.

Intent

The main intent of Telangana agriculture centers on promoting **market-based agriculture and allied sectors**, specifically in rice, poultry, livestock, horticulture, as well as non-cereal commercial crops such as cotton, sugar, and soyabean. The intent is to encourage agro-processing, value addition, and post-production activities so as to further build strong market linkages and ultimately increase farm households' ability to reinvest in their farm. The various package measures as discussed above (crop colonies, seed bowl, horticulture, etc.) as well as the irrigation measures including drip irrigation are all geared to produce for the market.

Furthermore, the intent to mitigate distress is articulated through enhancing farmers' investment capacity. Thus the market orientation of policy in general is further supported through the promotion of **financial initiatives and institutions**. Within this larger intent of market-driven agriculture however, Telangana's general bent towards social equity is also seen as some of its agricultural-related policies being targeted to **social groups** as well as small holders. Overall, the vision for agriculture in various Telangana documents is described by the following terms; sustainable growth, progress with distributive justice, productivity, commercialization, and water-use efficiency.

Comparison

Agriculture sector in Telangana is a continuation of the previous AP state's policies especially since the period of neoliberalism. A clear continuation can be drawn with the market-orientation for the agriculture sector in the 1999 **AP Vision2020 document**, which identifies the push toward particular 'growth engines' (e.g. poultry, horticulture, etc.) as well as a target of 6 percent annual growth rate.

Another continuation is the response to agrarian distress. The first mention in the budget speeches is in 1994 whereby drop in chilli prices was mentioned and later on the acknowledgement of suicides among farmers. The responses during AP were mostly revolving around financial measures such as credit/loans/insurance as well as the need for a tighter control over seed and pesticide dealers and moneylenders. While Telangana as a state sees many more cases of suicides, there is **no separate articulation of distress** and in fact the budget speeches reflect an even more detached articulation of distress – laying the blame on uncertain weather patterns, for example. Thus, Telangana continues with financial measures namely a crop loan waiver, as well as targeting spurious seed companies as well as free power. Furthermore, there is an alignment with the center's strategy of Doubling Farmers' Income as seen with the statement that the mitigation of distress to happen through **farmers' ability to (re)invest** in agriculture.

Extension services as well as targeted crop promotion strategies con tinue to operate in a **'model' farmer approach**. Though extension programs like "*Adharsh Raythu*" have been since done away with in both states, extension activities continue to be pushed through the same format, i.e. to progressive farmers in the endowed areas. Telangana, in extension planning promotes workshop trainings especially with youth and women, which generally follow traditional information dissemination programming.

Critiques and Implementation Gaps

1. Market Based Agriculture

While TG state clearly has a push towards social welfare (see Rural Livelihood and Food Security sectors below), it has a simultaneous thrust towards being oriented to the market in all of its economic ventures. Market-driven agriculture along with focus on value-addition processing and infrastructure development to support the same may indeed have to state (and nation's) desired effect of increasing farmer incomes. However, the volatility of price shocks, higher input costs, and market dependence **makes agriculture highly risky** especially for the small and marginal farmers as well as agricultural labourers.

Furthermore, if it is the market determines food production, questions of **food security** (producing non-cereal commercial crops or high-value food crops) **and sovereignty** (lack of freedom in crop choices, especially ones that may better suited to a particular agro-clime).

2. Dealing with Distress

Telangana, along with Vidharba, forms the dire region of the country with regard to agrarian distress, however the response of the government in the form of a crop loan waiver as is well known is only a **short-term relief measure**. While the state acknowledges in its planning documents causality in the form of decreased land productivity, water shortage, unremunerative prices, high costs of cultivation, and climate change; the strategy to mitigate distress lies in solely raising farmers' incomes through market-based and market friendly agriculture practices.

At the national level as well, the discussion about fair and remunerative prices has fallen out of style – the Swaminathan Commission had advised that MSP be equal to 50 percent over the cost of cultivation, however that has been replaced with the strategy of Doubling Farmers' Income. Adjusting MSP in the new strategy is said to have a negative macro-economic outcome, and thereafter there is **no further discussion on MSP**.

Procurement concerns are also central with regard to prices, that is whether a farmer sells at MSP or market prices and how much is procured. Often, private procurement happens at the farmers' doorstep, thereby reducing transportation and travel costs, whereas government procurement requires the farmer to transport her crop with often the only partial procurement. With regard to cotton procurement, it was also seen in Kamareddy that cotton procurement centers are located near ginning mills, and thus farmers not close to the mills were not able to access the government procurement centers. The agricultural officer there also described how along with lower private procurement rates, companies take an extra 3-5 kg off the top.

Lastly, the recent "new year's gift" to farmers in the form of free 24/7 electricity raises concern for **water stressed or less irrigated areas**, as well as a **misuse** of this provision. Past free power schemes have also not taken into account voltage fluctuations which have actually caused damage to pumpsets, only adding to farmers' costs. Thus, while it is intended to lessen the financial distress of the farmer, it may do the opposite.

3. Ensuring Insurance

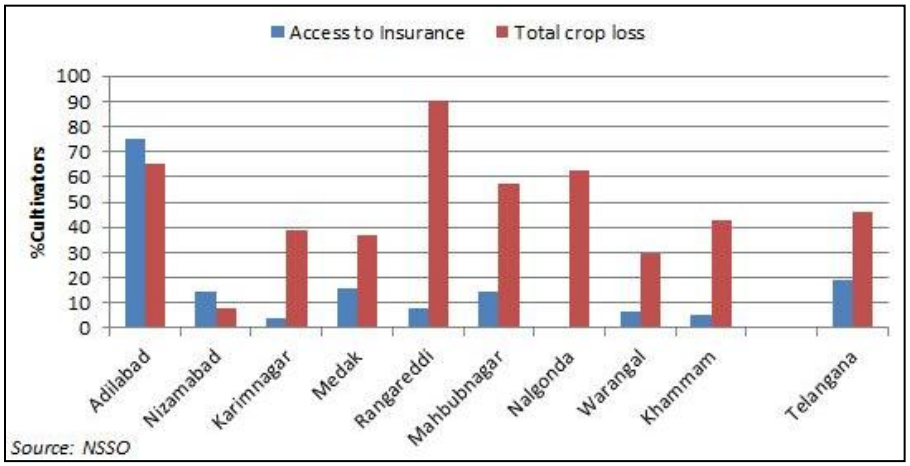
Telangana does mention a marketing intervention fund which has implication for price insulation for farmers but largely the focus relies on market centric-measures. This includes products like credit/loans, subsidies, as well insurance. The two main forms of crop insurance are the PMFBY and the WBCIS, both of which Telangana has implemented for specific crops. However there have been a range of critiques of PMFBY both from within the government as well as in the media. A recent CAG report on "Performance Audit of Agriculture Crop Insurance Schemes" which assessed crop insurance in various states including Telangana reveals many faulty aspects of the scheme. They include **low coverage of farmers**, neglect of non-loanee farmers, small and marginal farmers, sharecroppers and tenant farmers, and SC/STs; defining village and mandals as the **units of assessment**, **improper conducting of CCEs** and location of AWS (used to gather data for loss assessment), **no grievance redressal system, lack of data collection, and lack of awareness** amongst the farmers (81 percent in Telangana sample). The following quote from a recent review[47] of crop insurance has stated this about PMFBY;

> *" While the improvised scheme has lowered the premium rates for farmers and emphasized the use of technology, the lack of awareness and conflict of interests between multiparity agencies in*

[47] Dey, Kushankur and Debasish Maitra. "Agriculture Insurance in India: Promise, Pitfalls, and the Way Forward". *Economic and Political Weekly*. Vol LII No 52. 30 December 2017.

insurance product design, pricing/underwriting, and distribution has made the scheme ineffective and inappropriate, especially to the non-loanee farmers."

Figure 5.4 – Percentage of Cultivators Experiencing Crop Loss and Accessing Insurance, 2011-12



From the most recent NSSO[48] survey "Situation of Agricultural Households in India" 2011-12, most of the districts in Telangana do have **inadequate access to insurance** based on the extent of crop loss faced. Obviously awareness is a critical component as is the proper functioning of the insurance infrastructure in order to ensure coverage.

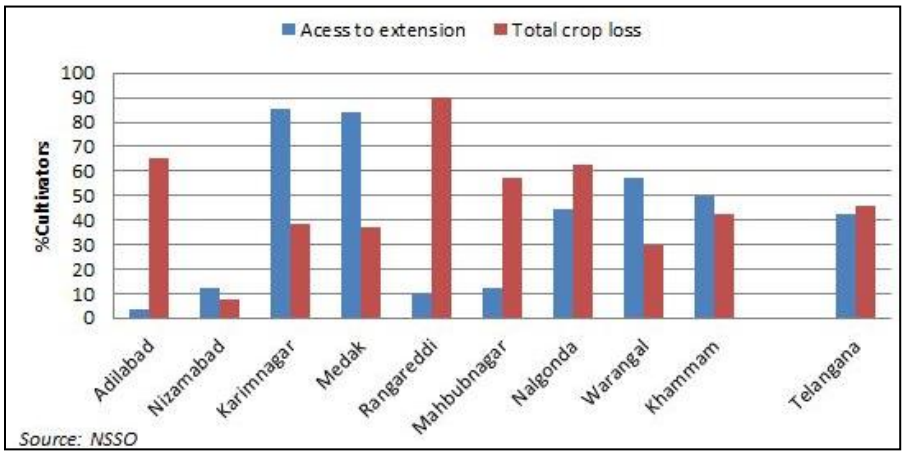
4. Extension & Promotion

During the period of rapid marketisation of agriculture in the 90s, public research and extension services were severely neglected which also allowed the entry of private seed dealers as well as an attempt to privatise extension services. While the subsequent government tried to rectify this through filling extension posts and promote various farmer-centric extension programs, the paradigm of extension in the state can be critiqued for its trickle-down pedagogy and **targeting of 'progressive' farmers and the physically endowed areas**. While Adharsh Raythu was scrapped, its failure was discussed primarily due to corruption rather than its content.

Furthermore, crop promotion strategies also seem to follow the **trickle down method of extension**. As discussed with an Agriculture Officer in Kamareddy district, the promotion of oilseeds (through NMOOP) was done by selecting a cluster of 50 hectares of black cotton soils within 1 village, for only a few interested farmers. Similarly, PMKVY for organic farming is being promoted in a similar manner. For extension and promotion to have more equitable and inclusive impact, they should reach out to marginal classes of farmers as well as lands with more difficult soils and irrigation coverage.

[48] National Sample Survey Organisation

Figure 5.5 – Percentage of Cultivators Experiencing Crop Loss as well as Accessing Extension



Again, from the most recent NSSO survey "Situation of Agricultural Households in India" 2011-12, it is seen that the access to extension based on crop loss varies across districts. Therefore, it points to the need to look at the **nature and the relevancy of extension services** to the local social and physical conditions.

5. Cropping

As stated above, the cropping is totally geared to market forces over what crops that may be more socially and ecologically sound. To that end, the proposal for crop colonies in the state, to be based on a cluster approach using soil analysis to determine cropping patter, also interlocks with crops that would be market-oriented. Here, **mono-cropping** is a concern as the continued production of only commercial crops poses **ecological risks**. Crops like millets which ensure **food and nutrition security** as well as are ecologically appropriate for more stressed regions may not figure into this cluster based approach.

a. Seed Production

The government strives to make Telangana the "seed bowl" of the country, even though it already produces a majority of the country's seeds. The **reliance on private seed companies** is articulated due their ability to produce low volume but high value seeds, e.g. hybrids, whereas government seed companies produce high volumes of low value seeds. While private seed dealers have a hand in the agrarian crisis in the state which has been well-recognised by the government, the desire to create a seed-bowl as a way to market and promote Telangana agriculture is underway. Furthermore, the question of what kind of seeds are produced and promoted is another **market-driven concern over social and ecological needs**. The government states that oilseeds and pulses are a 'social responsibility' of seed companies, but of course this is not enforceable by them.

b. Rice

Telangana in the 1960s primarily produced sorghum, but since the diffusion of green revolution the shift has been to rice. As compared to even pulses, rice has the **ability to withstand deficient rains** as well as requiring less weeding. SRI was said to have a higher labour requirement which may be a challenge in some areas. Unfortunately crops like pulses and millets which have both social and ecological value, are thwarted by rice, which has become a main crop of the state.

c. Cotton and Soya

The cotton crop is a particular distressing each year crop as **untimely moisture** can cause it to fetch lower prices. Furthermore, a lack of labour during the appropriate time will also affect yield as do different hybrid seeds have different tolerances to rain, soil, and management practices. Since the early 2000s the BT

variety has been actively promoted (.5 percent in 2002 to 95 percent in 2014[49]), though there has been evidence of the **volatility** of both this specific variety due to its pest proneness as well as market prices/demand. Soya is also a popular oilseed, but has a slightly different issue with regard to its germination cycle and the danger of inappropriate rainfall and temperature during the flowering stage.

5.2.3 Rural Livelihood

Rural Livelihood programs in Telangana take on a specific welfare bent that go beyond the central programs of **MGNREGS and NRLM**. The Telangana government's attention to livelihood is indeed noticeable through 3 of its **flagship programs** – Land Distribution to Dalit Women, caste/occupation-based asset distribution schemes, as well as Asara Pensions for various sections of society. In addition, the **allied sectors** to agriculture also emerge as a strong factor to boost rural incomes in Telangana – animal husbandry especially poultry, fisheries, and dairying. While these livelihoods can be seen as 'growth engines' in themselves, they are crucial in the context of agrarian distress and the need to diversify into rural non-farm livelihoods.

Intent

The government reaching out to different sections of society, particular SCs, women, beedi workers, the elderly, HIV patients, as well as occupational caste groups such as herders, fishers, barbers, washers, and musicians reflects a clear intent on the state's thrust on **social and economic welfare**. Whether it is the distribution of cultivable land, monthly pensions, or resources such as animals or modern facilities the state's role is to identify the resources as well as the categories of people they are intended for.

Comparison

The caste-based provisions for livelihood as well as the Asara Pensions are **clear new emergences** in the new state after bifurcation. The experience of the Telangana movement has also put forth a recognition of the families of martyrs, lawyers, journalists, and government employees and specific provisions for their socio-economic well-being as well as the 'needy' sections of society through the aforementioned measures.

Land distribution to Dalit Women is indeed a new concept for the state as well, however past AP times had also seen land improvement schemes with a focus on SC/ST lands. For example, Indira Prabha focused on improving the productivity of lands, whereas Indira Jala Prabha made this more specific by drilling borewells for assured irrigation. Telangana's scheme also mentions **distributing land that has an assured irrigation** source however the departure lies in the intent to distribute land to landless and giving the land rights to **dalit women**.

NREGA as implemented in the state continues to follow the same pattern from the previous AP state – including following the same schedule of rates as outlined in the 2013-14 financial year. Provisions such as raising the minimum number of days in times of drought are also seen, showing a general consistency with which NREGA is implemented.

Critiques and Implementation Gaps

One newly emerging concern for the new government is the amount of **spending on social welfare schemes**. Recently, a notification from the 15th Finance Commission has indicated that states would be incentivized for less spending on "populist measures" and therefore states like Telangana may have to be wary or otherwise make amends in other areas such as in implementing central flagship schemes or in promoting

[49] Reddy AA, Reddy GP, Radhika Rani Ch, Reddy AN and Bantilan C. 2014. Regional Disparities in Rural and Agricultural Development in Undivided Andhra Pradesh, India. Working Paper Series No. 47. Patancheru 502 324, Telangana, India: International Crops Research Institute for the Semi-Arid Tropics. 48 pp.

ease of doing business. Livelihood schemes like the land distribution, asset provision, and *Asara* pensions would not be encouraged by the central government from a fiscal point of view.

Based on information gleaned during the field survey in Kamareddy district, it was seen that there are several critiques regarding the implementation of NREGA in the state. Firstly, it was seen that **convergence** is happening with Swaach Bharat Mission and NREGA – a stark contradiction with respect to the intent of NREGA to promote gram sabha determined assets. Furthermore, there was an indication that NREGA may also be linked with agricultural labour works like ploughing and harvesting. Again, this is not a drought-proofing measure, let alone *gram saba* determined asset creation that NREGA seeks to promote.

In Kamareddy the following NREGA works falling under **drought-proofing measures** include farm ponds, recharge pits, contour trenches, percolation tanks, as well soak pits. Farmers in Lingupally felt that farm ponds would compromise their agricultural production, whereas there was less awareness about recharge pits so only educated farmers had taken them up.

An important technical concern is the **calculation of wages** – which is mostly based on volume of work completed. During months when soil moisture content is less, tasks like breaking the ground become more laborious and thus volume of work completed decreases and so do wages. Further technical concerns raised was the **lack of availability of work** when work demand was high, thus reducing the mitigating power of NREGA. Delayed payment of wages was also common, with NREGA workers in Kamareddy facing an average of 40 days of delay in 2016-17.

5.2.4 Food Security

Under the National Food Security Act, 2013 there are universal entitlements that state must ensure to its citizens through primarily three schemes – PDS, ICDS, and MDM. Telangana's implementation of these schemes has included specific thrustson expanding **PDS rice** coverage, **Arogya Lakshmi** meals in Anganwadis for women beneficiaries as well as providing **polished rice** (*Sanna Biyyum*) in the MDM, Arogya Lakshmi meals as well as in Welfare Hostels.

Intent

The expanded coverage of PDS Rice (decreasing the price and expanding the beneficiary criteria) has been described in the budget speeches as the "human face" of development policy and similar to the livelihood sector, the social welfare intent of the state can be seen here as well. The provision of *Sanna Biyyum* in also shows the state's intent to establish a mark of 'quality' rice as dignified form of food security. The government also acknowledges the plight of Anganwadi Workers, who due to fund delay, must pay for materials out of pocket to ensure. Similar to the welfare intent behind the various rural livelihood schemes, the state is intent on **going beyond social security norms**.

Comparison

The expansion of PDS rice coverage is a policy departure from both previous AP state provisions as well as what is deemed under the central act. The previous AP government had already decreased the price of price of rice but placed a limit per person and per family per month. Telangana has done away with these restrictions and has further expanded coverage by increasing the amount of rice per head, income and land holding criteria for the beneficiaries, and placing no cap on the number of beneficiaries per household.

The provision of polished rice (*Sanna Biyyum*) as opposed to broken rice (*Dodda Biyyum*) is also a new addition, that establishes a recognized betterment from the treatment of food security during the previous

state. In some districts[50], there are local examples of enhancing even the nutritional quality by providing millets in the Hostels and Anganwadis.

With regard to MDM, there is continuation of the previous state policy in provision until Class 10. In 2016, Telangana also extended provision during **summer vacations** to all areas, with a priority to districts that have been declared drought-affected. The national policy in this regard is more selective, stating that MDM should be provided during summer only in the drought-affected areas.

ICDS schemes are in direct continuation from the previous AP schemes, 'Balamrutham' for example. Only the name of the scheme providing meals to pregnant and lactating women has changed to 'Arogya Lakshmi' from 'Indiramma Amrutha Hastham'.

Critiques and Implementation Gaps

The expansion of PDS rice coverage seems to be coming at the expense of **reduced number of ration items** generally available through the PDS. Telangana had discontinued the earlier state-sponsored scheme called 'Amma Hastham' which provided 9 essential items in a packaged through PDS, and currently only rice, kerosene, and sugar are available. The field survey also revealed the lack of pulses and sparse distribution of kerosene to be most troublesome for beneficiary households, therefore **increasing dependence on the market**. According to a district level civil supplies officer, items like kerosene and sugar would be supplied only if there is a demand. There is further concern on this matter if PDS was converted into DBT, which although has not been implemented is under discussion.

The field survey revealed that ***Sanna Biyyam* was not being provided** in the Anganwadi centres in two of the villages, and furthermore the **Anganwadi Worker's reimbursements** were not received, therefore affecting both the quality and quantity of services and food. According to a district level official, some villages were **not getting MDM in the summer**.

Also, since **external agencies are tasked with the procurement of food rations** for both MDM and ICDS, the concern for accountability is raised. For example, if the fund allocation does not change during a drought and food prices do, the agencies tend to reduce the quantity/quality of food to adjust for the increased prices. While these agencies are very much allowed by the operational guidelines of MDM, the lack of direct government involvement means a lack of accountability with regard to quality and thus the quality of the service can't be guaranteed.

[50] Vikarabad (http://www.thehindu.com/todays-paper/tp-national/tp-telangana/vikarabad-leads-with-innovative-programmes/article19836643.ece) and Khammam (http://www.thehindu.com/todays-paper/tp-national/tp-telangana/multi-grain-meal-to-replace-upma-in-tribal-schools/article19953965.ece)

6| SPATIAL AND SOCIAL CONTEXTS OF DROUGHT

Droughts are not homogenously felt. Even with comparable deviations in rainfall, the actual drought condition of scarcity may be experienced differentially by different regions and sections of society based on the geographical, locational, and social contexts. A short duration field survey was carried out in Kamareddy district for understanding the issues of access to various drought related policies as well as the contexts of drought. The aim was not to show the intensity of drought impact as that analysis has already been covered by the UNICEF (2016) assessment Mahbubnagar districtP49F[51]P. The purpose was to take the understanding of droughts and its spatial contexts outside of the traditionally "drought-prone" regions.

6.1 'CONTEXTS' IN DROUGHT POLICY

6.1 Spatial Contexts

To what extent is the understanding that droughts are experienced differently by varied geographies and socio-economies acknowledged and incorporated in policy? With regard to the spatiality of droughts, the National Drought Manual 2009 mostly focuses on the spatial extent of droughts and differentials in rainfall patterns in different regions. The National Drought Manual 2016 takes the understanding of this spatiality to a more nuanced level by incorporating the socioeconomic factors in spatiality.

> *"…the spread and intensity of the calamity is contingent on several factors, including the status of surface and ground water resources, agro-climatic features, cropping choices and patterns, socio-economic vulnerabilities of the local population etc."*

This increased appreciation of the socioeconomic factors in the making of drought conditions is in line with the recent shifts in discourses and problematization of droughts in policy. The spatiality of droughts is operationalized in policy in two forms – identification of 'drought prone areas' and through declaration of droughts. Drought prone areas are identified in rather simplistic terms of rainfall/moisture index and irrigation coverageP50F[52]P. This criterion again assumes that irrigation coverage is adequate for drought-proofing or reducing the drought-proneness of a region. However, as already discussed in Chapter 4, this simplistic understanding of drought-proneness can be very limiting, especially in a region and agro-ecological regime where irrigation systems themselves are subject to scarcity and over-exploitation. Also, since this criterion is the basis on which the major drought-proofing programme of the country is based (IWMP), it excludes other regions which may be vulnerable due to socioeconomic factors, from accessing drought-proofing practices and policies. In the face of climate change which can affect regions in all agro-climatic regimes, this limiting definition and areal extent of drought-proofing programmes can be exclusionary. Since the problematization of droughts has moved beyond core areas (as discussed in Chapter 2) drought-proofing programmes also need to move beyond core areas.

Outside of these core areas, regions usually depend on programmes such as MNREGS, traditional water-saving practices, individual coping mechanisms, and government drought declaration. Drought relief depends entirely on the actual declaration of a block/mandal as drought affected by individual states, which has been frequently critiqued for its inconsistencies and politics (SC 2015, Samra 2004, Rathore 2005, Jairath & Ballabh 2008). Factors such as flexibility of indicators, subjectivity of local contexts, inadequate funds, and politics of relief distribution, have plagued proper drought declaration and as a result provision of drought relief in the past. Since the drought declaration is done at a regional level, it would

[51] one of the most backward and drought-prone regions of Telangana

[52] Hanumantha Rao Committee Report 1994

overlook a region where a lower overall scarcity and rainfall deviation may still adversely affect the poorest sections. It would also overlook regions that may not have faced crop loss of over 50 percent (GoI 2009) but may yet be affected by severe water shortages. Until very recently drought declaration was based on climatic deviations and agricultural impacts. It did not take into consideration the vulnerabilities emanating from just hydrological impacts with or without a severe impact on agriculture. This is particularly relevant for water insecurity for the poorest sections of society which may not be ameliorated simply by agricultural livelihood access.

Only in 2016, the GoI Drought Manual, following the Supreme Court ruling of May 2015, has not only prescribed a set of indices and range of values of each, but also included hydrological indices for drought declaration. However, drought declaration indices relate mostly to overall resource conditions of a block but not to access conditions. Unequal access to resources may create vulnerabilities for some but not for others in the face of rainfall deficiencies, and thus not be eligible for a declared area-based relief.

6.1.2 Social Contexts

The focus of enquiry here is whether drought policy in India acknowledges that some sections of the population are more vulnerable than others to droughts, to what extent and how is this taken into consideration in policy design. In the colonial Famine codes the objective of the government was restricted to saving lives. It was acknowledged that the poorest were worst affected, the actual relief for the poor was only in the form of adhoc poor-houses and gratuitous relief for those who could not perform physical labour, but largely the discourse stated that they would not "attempt the task of preventing all suffering and of giving general relief to the poorer classes of the community". The National Disaster Management Policy 2009 which currently provides the integrated policy framework for drought disasters acknowledges in clear terms-

> *"In the context if human vulnerability to disasters, the economically and socially weaker segments of the population are the ones that are most seriously affected. Within the vulnerable groups, elderly persons, women, children— especially women rendered destitute, children orphaned on account of disasters and differently abled persons are exposed to higher risks."*

This acknowledgement manifests in the response plans under community based disaster preparedness wherein "special attention" is cited for elderly women, children and differently abled persons and encouraging women and youth to participate in decision making committees and action groups at the community. Table 6.1 shows all the references and responses to inequality in drought policy.

Along with provisions in policy for catering to inequalities, there needs to be an acknowledgement on why and how these inequalities and hierarchies are maintained and reproduced in society. Social structures function to concentrate benefits of class and state among the few at the top of the hierarchy. Targeted policies and resources tend to be appropriated by those with most access to resources. While the acknowledgement of the specific vulnerabilities of certain groups is appreciable, development policy has also evolved a general tendency towards cost cutting in social sector schemes through targeting of vulnerable populations and areas. Targeted schemes require accurate targeting methods and leave scope for errors and limit access to essential social schemes (Jhabvala & Standing 2010). Thus policies that are targeted in nature need to design operational mechanisms that can sever means of appropriation of policies by the affluent, robust and regular monitoring and impact assessments. The policies and programmes, in their design, must research methods and levels of access and reflect an understanding of all the challenges to the uptake of these policies by the most vulnerable and excluded, such as lack of education, economic support systems, access to information, and social discriminatory practices.

Table 6.I – Inequality in Drought Policy and Responses

Colonial Famine Codes: While the aim was to make sure the "poor" did not starve to death, their upliftment to meet with conditions of future droughts and famines was not considered as the responsibility of the state.
Post-independence Drought related development Policy • Focus on inequalities socioeconomic groups – SFDA and MAFLDA (1971): *discontinued* – Scheduled Caste Sub Plan and Scheduled Caste Sub Plan Budgeting • Focus on women and children (focus since late 1980s) – Department of Women and Child Development 1985 – ICDS (initiated in 1975 but universal coverage from the 10th plan) – Mid-Day Meal Scheme 1995 – DWCRA 1995 (50 percent priority of SC/STs): incorporated in NRLM – National Food Security Act 2013 (The eldest woman who is not less than eighteen years of age, in every eligible household, shall be head of the household for the purpose of issue of ration cards.)
Post-independence Drought Policy • Focus on inequalities socioeconomic groups: – Equality focus through watershed plus approach since 2008 (landless) – MGNREGS prioritisation of small and marginal farmers/BPL/SC/ST for private farm works and relief employment • Focus on women and Children: – Greater role for women in mandatory representation in SWDC, DWDC, WCs – Role of women SHGs in drought mitigation initiatives and watershed management – Mid-day meal schemes during summer breaks in schools in lean seasons – National Disaster Management Policy 2009 acknowledges the higher vulnerability of women and children – Drought Relief manuals: acknowledges that women are worst hit by water scarcity during droughts (women SHGs thus recommended to be given role of water use and management in village) – Hydrological indicators in drought declaration introduced only in 2016 (directly relevant for women's vulnerabilities)

6.I.3 Spatial Contexts of Drought in Kamareddy District

Kamareddy was formed from the bifurcation of the erstwhile Nizamabad district. Nizamabad was one of three districts where all mandals were declared as drought affected in 2015. The objective was not to be representative of the district or to ensure wide spatial coverage, rather to find and reflect on evidences that show how drought impacts vary across regions, even within close proximity, due to various physical and socioeconomic factors at work.

Figure 6.1 – Changes in Agricultural Landuse between October 2012 and 2015

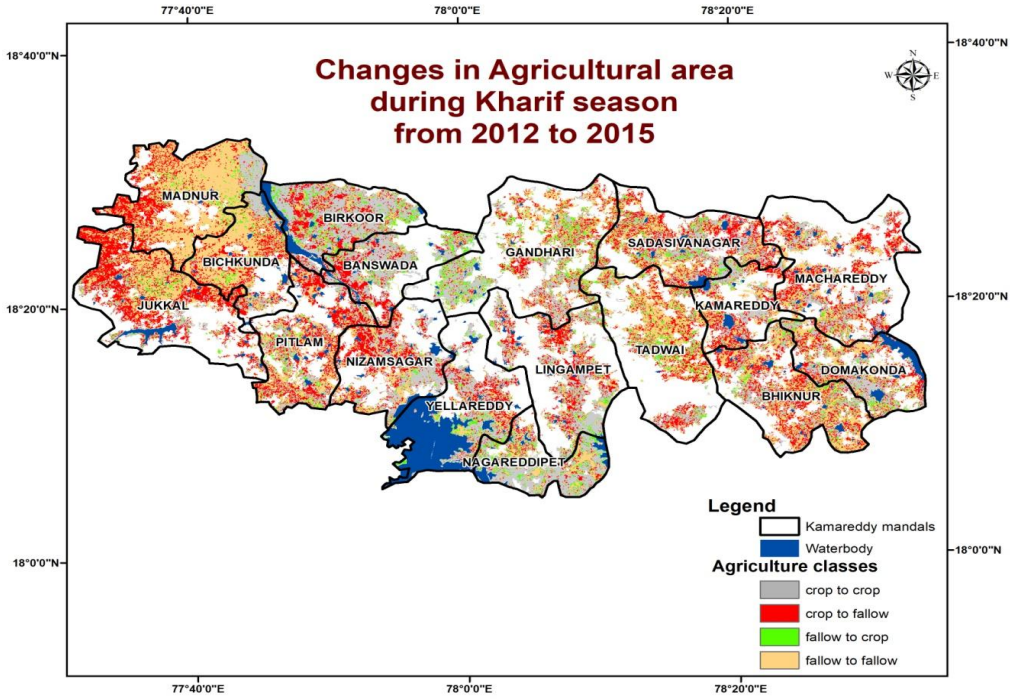
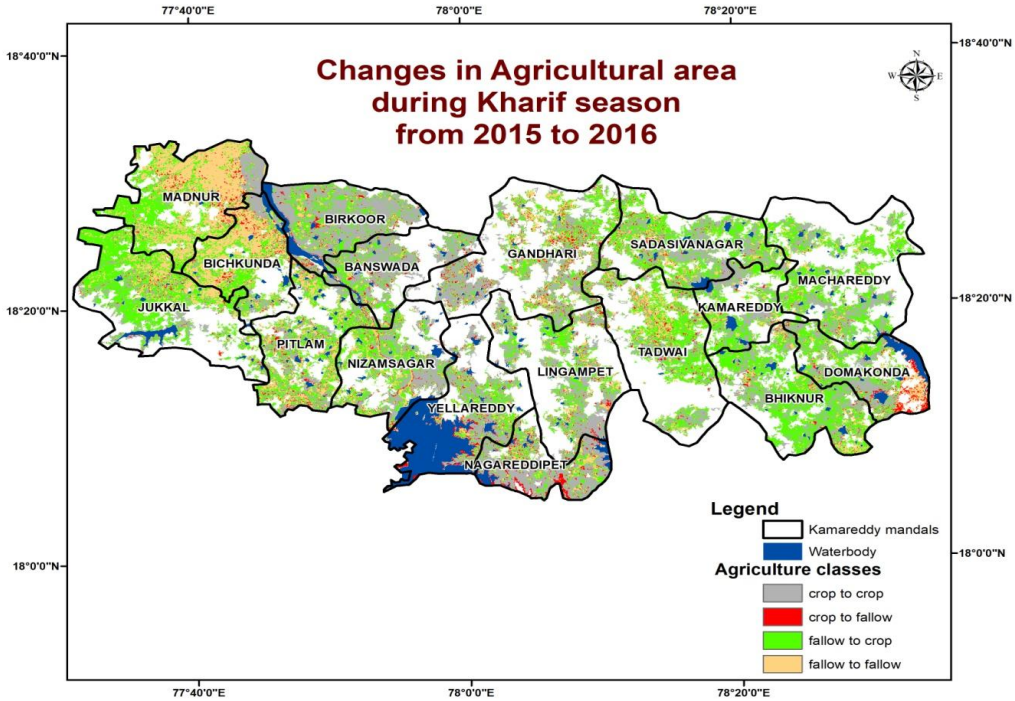


Figure 6.2 – Changes in Agricultural Landuse between October 2015 and 2016



Source (figure – 6.1 and 6.2): LISS III

2012 was a single deficient year in Kamareddy and 2015 was a successive drought year (following a deficient year in 2014). Figure 6.1 shows the intensification of agriculture reduction/failure from a single drought year to a successive drought year. Figure 6.2 shows the difference of agricultural landuse between a normal rainfall year (2016) and a successive drought year (2015).

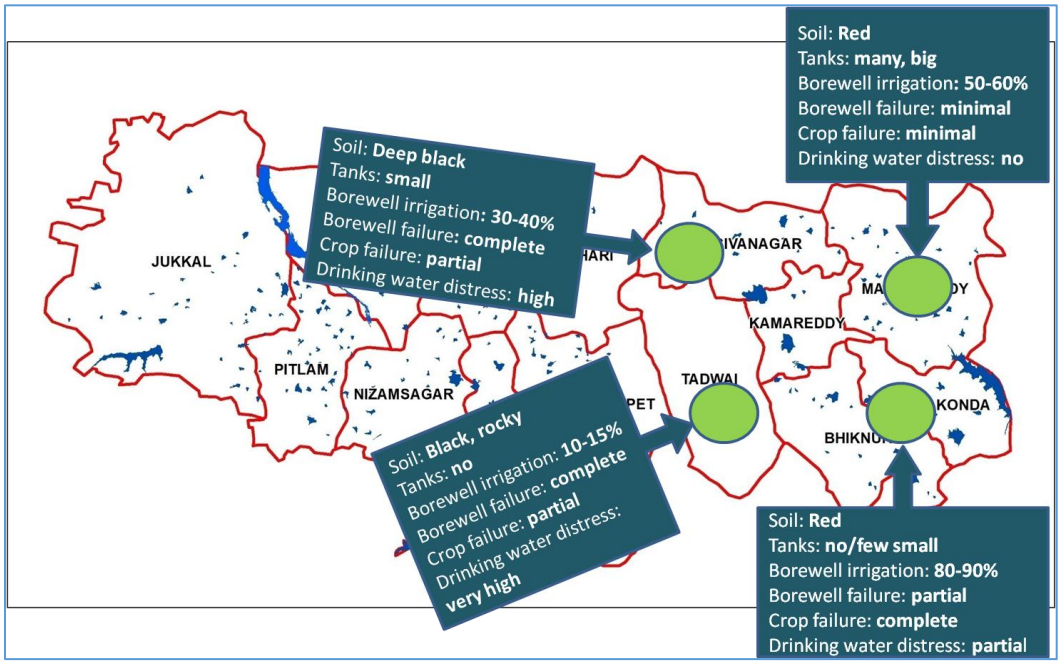
Table 6.2 – Change in Agricultural area as a percentage of total Agricultural Landuse in Kamareddy District, Telangana

Landuse change categories (Kharif)	2012-15	2015-16
Crop to Fallow	**27.91**	4.87
Fallow to Fallow	30.90	19.53
Crop to Crop	33.01	**36.22**
Fallow to Crop	8.18	**39.38**

Source: Computed from LISS III satellite images 2012, 2015, 2016

The change in agricultural land use shows the impact and vulnerability of the region. More than one-third of the agricultural area in the district is resilient to drought as cropping area is maintained in the district. Almost 40 percent of the agricultural area is affected by drought between a good rainfall year and drought year. During a drought year over 58 percent of the agricultural land is fallow while during a normal year only about a quarter of the area is fallow land. Four broad regions were selected for the study that showed differing spatial contexts.

Figure 6.3 – Spatial Contexts of Drought



Source: Field observations

A total of 13 villages were visited in an RRA approach including group discussions with farmers, interviews with village level institutions. The spatial variables included soil types, proximity to a cheruvu (tank), size of tank (cheruvu), application of Mission Kakatiya, major cropping patterns, access to irrigation, elevation and terrain, presence of civil society, and access to the city. In addition, presence of civil society, level of education and political influence of village leadership enabled better access to information regarding agricultural technologies, practices, and market. A spatial analysis of droughts

showed that there is a non-linear relationship between rainfall, agriculture failure, and drinking water distress.

Table 6.3 – Spatial Variables and Associated Regional Differences in Drought Impacts/ Vulnerability

Variable	Impact on Drought impact/vulnerability
Soil type	Red soils have lower moisture holding capacity and need regular assured irrigation, black soils have high water holding capacity and thus one or two irrigations/rainfall in a month are adequate for crop growth. Agriculture failure is partial in black soil areas even under rainfed conditions or when borewells fail completely. Agriculture failure is complete in red soil areas even if borewell failure is partial.
Proximity to cheruvu	Areas close to and downstream of cheruvu have high well yields, mostly grow paddy and sugarcane. The failure of borewells tends to be lesser and agriculture failure is partial. Lands away from cheruvus face higher borewell failure during droughts.
Size of cheruvu	Small cheruvus (eg. Krinajiwadi, Brahmajiwadi, Lingupally) do not hold water for more than a few weeks if there is no rainfall to recharge it. Big cheruvus (e.g. Isaipet, Dharmaraopet, Bibipet, Tekrial) hold water for multiple seasons, even through a drought year.
Application of Mission Kakatiya	Mission Kakatiya implementation has improved water retention capacity of cheruvu, but for small cheruvus without major water holding capacity it has not contributed to water saving for a drought year, or even an additional season of cropping. In large cheruvu, it has helped improve well yields and rabi cropping potential. But cheruvus are not filling up due to exploitation of groundwater and inadequate rains. Timing of rains is important as late rains (during and post harvest) ensures water for next season.
Cropping Pattern	- Maize, paddy, and sugarcane are grown in the red soil areas. Cotton, soyabean, paddy, pulses are grown in black soil areas. - Cotton and maize are lesser vulnerable to droughts, and lower rainfall can produce a good quality of product due to low moisture levels. - Paddy and sugarcane sustains through dry spells and rainfall fluctuation during a normal rainfall year but not complete failure of rainfall and irrigation. - Cotton in black soils harvest season is later than maize and paddy, offers opportunity for migrant agriculture labour from red soil areas, especially in drought years.
Elevation and terrain	Affects groundwater availability, quality of land. Rocky hilly terrain, higher elevation – poor soils mixed with gravel, deep groundwater aquifers, poor aquifer storage capacity Black soil gravel soils are poor for easy groundwater recharge as soil holds much of the rainfall, percolation is slow.
Access to city	In remote villages male members migrated for the entire season in search of livelihoods. In villages close to urban centre, daily wage migration was possible, and they had better chances to gaining employment due to regular contact and social linkages in the city. Easier access to market for food.

The red soil areas, with partial failure of borewells, faced complete failure of agriculture but only partial drinking water distress due to reduced yields. In black soil areas agriculture there was almost complete failure of borewells and major drinking water distress (required government water tankers) but only partial agriculture failure even in rainfed areas. The simplistic linkage of irrigation with drought-proneness as seen in policy clearly needs to be questioned. This is particularly relevant for the new Drought Manual that has provided a fixed level of rainfall deviation as the first and necessary trigger to declare a drought. Some regions may face agricultural droughts at lower levels of rainfall deviation. Also, until 2016 the indicators for drought declaration included only agriculture variables. **The non-linear and imperfect linkages between rainfall deficiency, agriculture failure, and drinking water distress** clearly suggest the need for inclusion of hydrological indicators for drought, a change which was made as recently as 2016 (GoI 2016). While this offers an introduction into the issue and need of spatial analysis in different resource and agroclimatic regimes with different local practices, there is space for further nuanced and wider spatial analysis to understand these contexts of droughts.

6.1.4 Social Contexts of Drought in Kamareddy District

Seeing droughts as a regional issue alone, however, takes away from the fact that the burden of droughts is not carried by a homogenous population rather by a population structured by inherent inequalities. **While some sections are able to cope better during droughts, vulnerable sections suffer disproportionately due to their lower resilience to reduced incomes and poor quality of access to resources.** Policies that do not acknowledge as well as explicitly address such inequalities tend to flow along the existing social cleavages and concentrate the policy benefits among those who have more access to resources and social capital, thus exaggerating the vulnerability of the weakest sections.

Inequalities in Livelihood Base

Table 6.4 shows the differences in average landownership among various caste groups in the study area.

Table 6.4 – Caste-wise Inequality in Land-ownership in Kamareddy District

Social Group	Average landsize (acre)	% landless households	% cultivators having access to irrigation	Sample household
Other castes (OC)	7.2	3.3	82.8	137
Backward Castes (BC)	3.8	4.4	59.5	30
Scheduled castes (SC)	2.4	12.9	40.0	85
Total	3.7	7.1	56.2	252

The SCs on an average own lesser land and are predominantly marginal farmers. Even the incidence of landlessness is high among this group. Even among the landed less than half the SC landed households have access to irrigation whereas over 80 percent of the upper caste households have access. Access to irrigation significantly affects the choice of crops (figure 6.5), and productivity of agriculture (table 6.5) thus affecting income from agriculture. Figure 6.4 shows that over 90 percent of higher caste households reported cultivation as their primary source of income, whereas among the SC households only half reported the same and the dependence on agriculture labour is significantly higher. Their dependence on migration (both daily as well as long term) for labour is also higher. The very base of livelihood and income for lower castes is thus precarious and limited, a year of drought and deficit play the role of sharpening existing vulnerabilities.

Figure 6.4 – Primary Source of Livelihood by Caste Composition

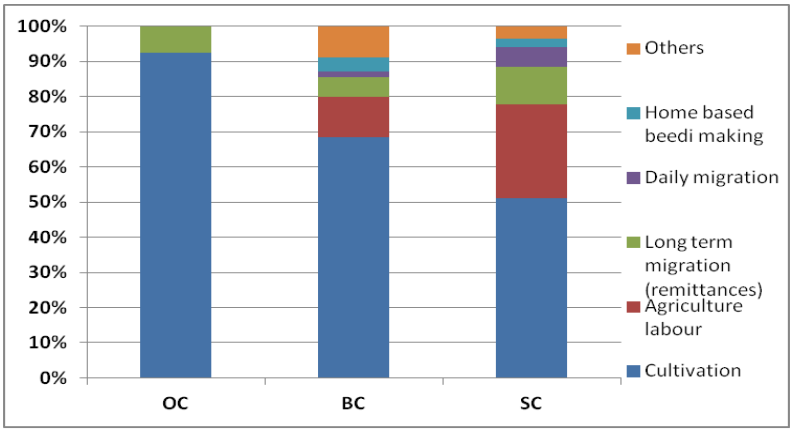


Figure 6.5 – Cropping Patterns by Irrigation Status of Landholdings

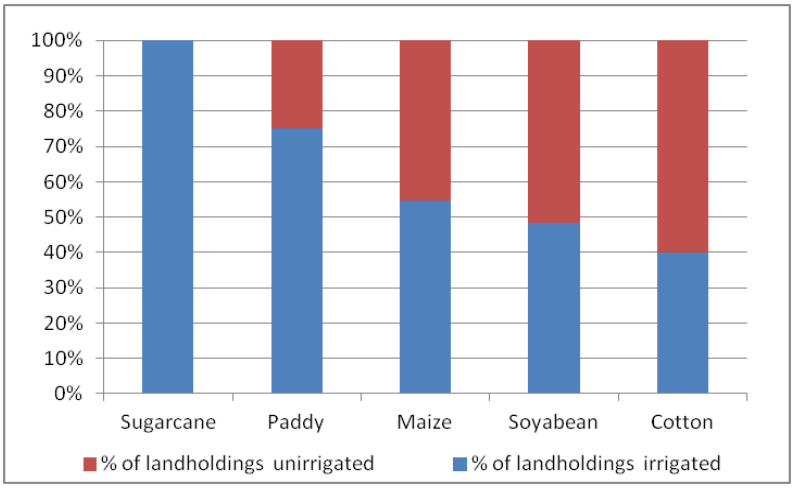


Table 6.5 – Differences in Productivity of Crop by Caste

Social group	Productivity (Qunital per acre)				
	Paddy	Cotton	Maize	Soyabean	Sugarcane
SC	12.3	6.5	10.1	4.7	1873
BC	12.2	6.6	11.0	4.3	8192
OC	19.3	8.2	11.8	4.3	10000

Ramakumar (2008)P51F[53]P argues that social and economic conditions before a disaster determines the impact of the disaster and its resilience to it. The lower castes have lower access to land, irrigation and agricultural output and thus agricultural income, depending on agriculture labour and daily migration for wage labour in other sectors. In the event of a drought, this limited livelihood base can further deteriorate due to a host of factors. This could include agriculture failure, lack of agriculture labour,, the need to travel to black soil/canal irrigated areas, the increased supply and reduced demand for agricultural labour leading

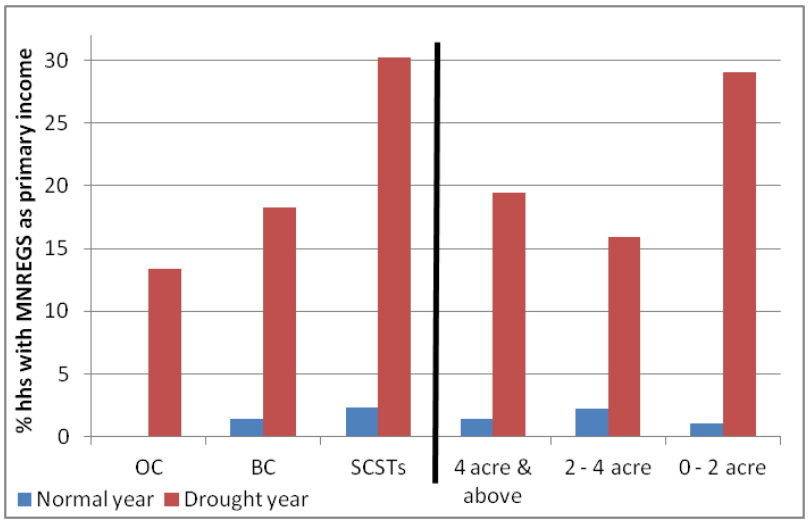
[53] Ramakumar, R. (2008)

to reduced wages, and increased demand for daily wage labour in the urban centre leading to increased days without wage work.

Access to Policy

Not only is the base income vulnerability higher for the lower castes and marginal farmers, their access to government policy is also lower. The need for and dependence on relief employment shows the level of livelihood vulnerability and precarity to stable and regular sources of income. The demand for NREGS mandays of work went up from an average of 60.58 days during a normal year to 82.27 days during the drought year in the study area. Figure 6.6 shows that for almost one third of the SC population NREGS provided for the primary source of household income during a drought year, which is significantly higher than that of backward castes and upper castes. On similar lines of argument the highest dependence on NREGS during the drought year was among the marginal landowners.

Figure 6.6 – Dependence of Households on MNREGS as Primary Income Source by Class and Caste Category in Normal and Drought Year



Delays in MNREGS wage payments for an average of 42 days, ranging from a few weeks to over three months, have been reported in the field study area. Given that NREGS provides the basic source of livelihood to the most economically and socially vulnerable sections, such delayed payments can pose as sources of vulnerability to droughts to these sections.

Table 6.6 – Delay in MGNREGS payment

Days	% Response
No delay	41.8
15 & below	11.4
16 - 30	12
31 - 60	11.5
61 - 90	10.1
91 & Above	12.6

In the absence of adequate income to meet livelihood and personal requirements households tend to depend on loans and agricultural credit. However, access to loans is not similar for all categories of households either. Firstly, in terms of the very access, marginal farmers and lower castes have lesser access

to farmers' cooperatives to enable them to access low cost inputs and loans through such institutions. The access of these vulnerable groups to SHGs however is significant (figure 6.7). This also shows in their access to credit during a drought period. The dependence on SHGs and informal sources of credit is significantly higher for the vulnerable caste and class groups, while access to formal sources of credit is higher for the upper castes and large farmers (figure 6.8). SHGs provide a limited amount of loan amounts, and are unable to meet the increased demand for credit, for both personal and livelihood purposes, during drought periods. Since facilities of low interest crop loans, crop loan waivers, and loan linked crop insurance are made available through and associated with formal sources of credit, these informal sources lose out on access to many government financial benefits and policies.

Figure 6.7 – Membership of SHG/DWCRA and Cooperatives by Caste and Class Category

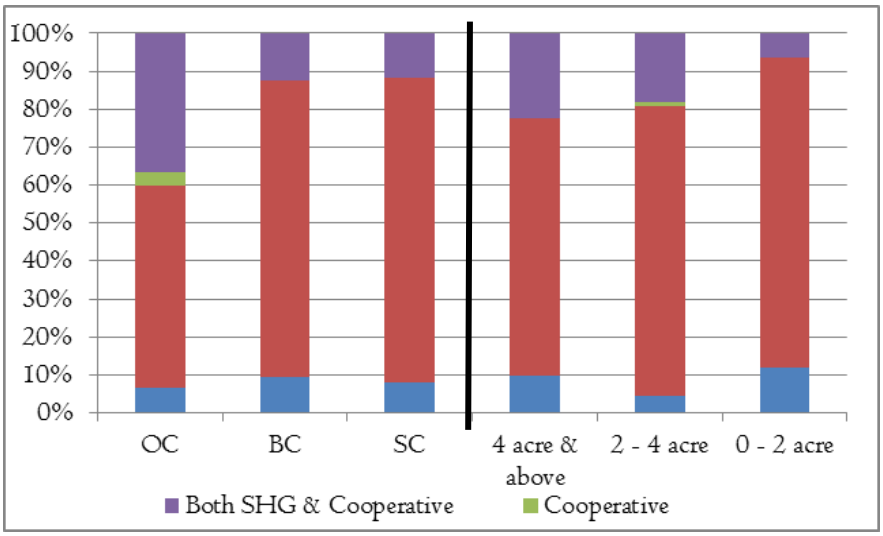
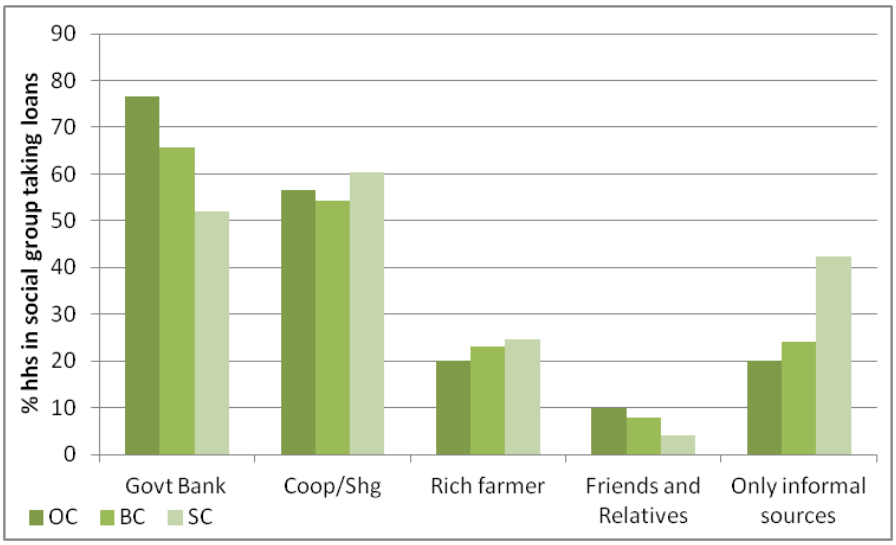


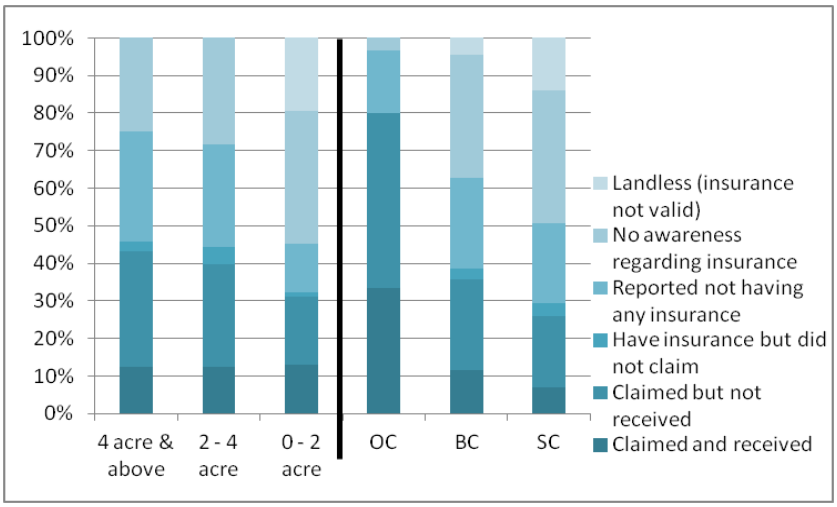
Figure 6.8 – Access to and Sources of Loans by Caste



Crop insurance, a major risk management initiative being focussed on by government policy in operationalized primarily through a linkage with crop loans accessed from banks. At the time of providing crop loans against a particular crop, an annual insurance premium is deducted from the loan amount against that particular crop. A significant percentage of households, particularly from the lower castes and poorer households reported being unaware of insurance or not having insurance (figure 6.9). This is also

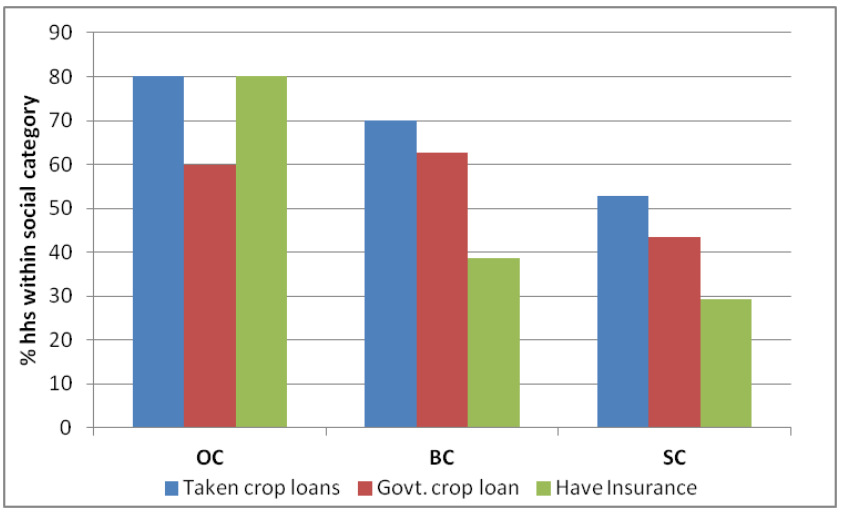
visible from figure 6.10 wherein among the SC and BC households despite having access to government sources of crop loans, many households reported not having/no awareness regarding crop insurance. Even among the households that reported having insurance, a large percentage of them claimed but did not receive the insured amount (figure 6.9). Farmers reported not being aware of the claim process, not trusting complex and long drawn official claim processes, and late field visits by insurance officials to assess crop loss (fields have already been cleared by then and soil prepared for the next sowing).

Figure 6.9 – Access to Crop Insurance by Caste and Class Category



Source: Field survey.

Figure 6.10 – Relating Crop Loans and Insurance by Caste

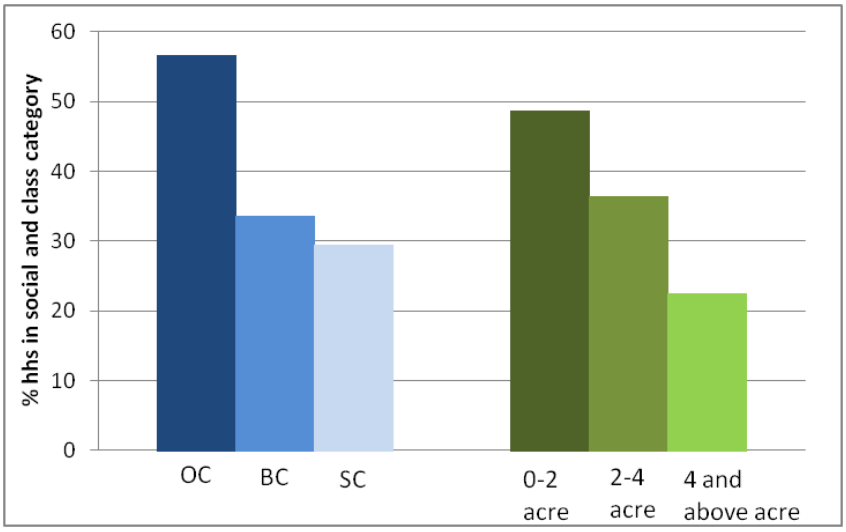


Source: Field survey.

Farmers reported that they took most crop loans against sugarcane crop as they got higher credit amounts for the crop, but they might choose to sow a different crop. Since the insurance is linked to the crop loan, it is accordingly linked to the crop that the loan is covered for. Since there is a mismatch between the crop reported for the loan and the crop actually sown, famers are not eligible for the crop insurance they paid the premium for. This is also relevant given that preparedness for droughts, crop contingency, and extension services during drought periods might make farmers choose and sow different crops. Crop contingency plans, on field, particularly relate to advice on choice of crop during a late onset of rainfall

when crops have not yet been sown. In such situations insurance linked to particular crops may prove ineffective. Government extension is also unequally accessed by different social and economic categories of households. The upper castes and large farmers have reported higher access to extension services (figure 6.11). This is also due to a popular method of extension through *progressive farmers*. Farmers also reported that while government officials have visited the village for extension, they usually come at hours when most farmers are in the fields for cultivation and farm labour.

Figure 6.11 – Access to Government Extension by Caste and Class Category



Source: Field survey.

The socially discriminatory processes at play are particularly visible in drinking water access through government tankers and food access through ration shops.

Narratives of inequality in access to government tankers:

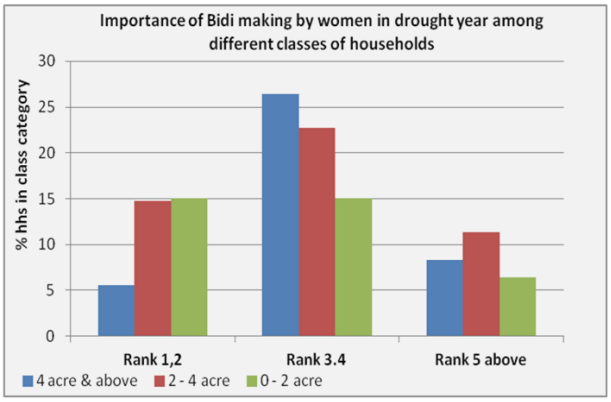
Village Chityal –	SC colony did not receive Government tankers
Village Lingampally –	SCs were limited to 5 pots of water from govt tanker, upper castes could take upto 10 pots of water
Village Lingupally –	Long queues for water from two functional common waterpoints: SCs had to wait for other caste hhs to collect water first.
PDS:	got limited pulses and oil which was given to the higher caste households, but not the SCs.

Since women were found to be primarily responsible for the collection of water and food from the local ration shops, these vulnerabilities and inequalities were particularly visible in women's narratives of drought impacts. Vulnerabilities were more pronounced among the women from vulnerable socioeconomic sections.

- Inability to contribute significantly to agriculture labour because of the need to wait for tankers and uncertainty of water supply
- Long queues and quarrels over water

- Longer and late night hours spent for *bidi* making (important primary livelihood source among the SC and BC households during drought years – figure 6.12) by women in order to earn additional income for household.
- SC households got lesser access to tanker water, and they had to wait longer in queues for the upper castes to access water before them.

Fig 6.12 Importance of Bidi-Making as Livelihood Option



- Since PDS mostly provided rice, and most SC households did not receive pulses and oil because of limited amounts available, their primary dependence was on rice. Nutritional security was unmet because of increased prices of vegetables and lack of proteins in diet.
- Major percentage of backward classes depended on livestock as a major alternative livelihood source. However, water and fodder for livestock was a challenge. While men were responsible for purchase and transport of fodder from another district, women were responsible for their water needs. In most villages women had to travel long distances with livestock to farm wells and *cheruvus* in other villages for water.
- Since men mostly migrated daily or for the entire season for wage labour to nearby big villages and the urban centre, women bore the brunt of reduced water availability for household and livestock.

The impact of drought, as well as the ability to cope with them, through policy and resource access is unequal in rural areas. Such inequalities need to be met head on firstly by recognising and acknowledging these inequalities in policy, which currently is more discursive than functional. After recognising these inequalities, the means and paths through which these socioeconomic inequalities operate and reproduce in rural society needs to be researched and identified. These means and variables that limit access to resources and policies need to be built in to the design of policies and methods to address these limitations need to be explicitly specified. And finally since these socioeconomic inequalities are entrenched in social norms and practices, regular monitoring of access to these policies need to be provided for. Grievance redressal, regular audits, and availability of monitoring data are essential.

7 | DISSEMINATION WORKSHOP REPORT

7.1 OBJECTIVES

In order to share and get feedback regarding the preliminary findings of the policy and field research, engagement with the various sections of society working within the ambit of drought policy is an important component to the project. To this end, a dissemination workshop was held with Telangana-based individuals from government, civil society, academia, and research. The objective of the workshop was to seek directions for research and enquiries beyond the dominant discourses of structural and resource-centric solutions to droughts and to look at drought policy through a lens of inclusiveness and access.

The main outcomes of workshop were two panel discussions; 1) Policy and 2) Methodology and Implementation. The discussants from the relevant fields responded to some prompt questions followed open/round-table discussions where participants contributed very valuable comments and critiques regarding the current project as well as their own perspectives and experiences around drought. The various points that emerged from the workshop which for the purposes of concrete takeaways for the larger project can be discussed as either critiques, debates, and suggestions both for policy and research.

7.2 POLICY DEBATES

7.2.1 Convergence Issues

As was conveyed in the project dissemination, drought is a multi-sectoral issue and thus several line departments are involved in addressing drought from various levels. Thus, the question of convergence becomes very central in the operationalizing of handling drought – whether it is relief, mitigation, preparedness, and building resilience.

In general, there is a lack of convergence with the government's intent and action. With regard to drought policy, there has been convergence between various departments, but the committees that are formed after a drought operate on the basis of peoples' 'memory' of drought.

There is no convergence between irrigation engineers and agriculture officers, which impacts water use efficiency. The former are pushed to take up works rather than to educate famers and do capacity building. Increased clarity on water management as well as drought management is needed as the two are not aligned.

There is no coordination between agricultural universities and action – for example, there are currently 42 lakh acres under cotton cultivation while only 15-16 lakh acres are suitable for it. The Dept. of Agriculture, know the risk, yet they are distributing the seeds. In general there is a huge gap between research, universities, and the government. There should be a shift to the micro level, as even there are mandal wise differences that should be taken into account.

7.2.2 The Role of Technology

As the participants were from mixed backgrounds, primarily physical scientists and social scientists/activists, there was a debate regarding the role of technology in combatting drought.

Many of the physical scientists echoed the sentiment that science and technology initiatives for short term drought management such as monitoring, hazard and risk assessment is important, as well as technology in agriculture such as drip systems. One gave the example of Kamareddy, where there is a huge demand for

drip irrigation as it can lead to 3 crops per year as well as the need for transplanters. Smart agriculture enabled through technology and data-based farming in this context was also raised.

On the other hand, the limitations of technology were also discussed. For example, drip not only requires an assured source of irrigation, but also requires uniform water pressure, as well as proper salinity level. Technology needs to be seen in context, and how increased water use efficiency needs a proper support system. To this end, proper grievance redressal systems should also be in place.

7.2.3 Droughts: Disaster vs. Backwardness

The closing question that was posed during the project dissemination was regarding how to conceptualise droughts. Are they a disaster or a larger revelation of backwardness? Are they just rainfall deficiency or a larger condition of systemic neglect?

Seeing drought as rainfall condition vs. backwardness, brings up the point that drought is both cultural and agricultural. Common property resources as well as individual land holding sizes are decreasing. Drought is about *jal, jangal, jamin*, and *jaanvar* (water, forest, land, and animals) as well as the monsoon and the market, specifically how the market determines crop shifts.

Drought is both disaster and backwardness, and rather it is about vulnerability and how systems are built. Drought is not an overnight disaster, but that makes it all the more amenable to be being addressed.

7.2.4 Failure of the State

Telangana state was borne out of negligence, but today the government is doing the same thing. PDS rice, *sanna biyyam* in hostels, FDI, farming in polyhouses – is this having development? How to change development is the question we should be asking, otherwise nothing will change. There have been over 30,000 farmer suicides, and over 3,500 after Telangana state formation based on RSV's newspaper research (the latter figure is probably underreported). There is a denial of the state of the crisis behind these deaths, as they are blamed on marital fights and other domestic issues. Prices remain low for farmers and in addition, soil depth, organic matter content, sub-soil salinity (affect deep-rooted crops) and the hard bedrock (raises issue of where to recharge) are important considerations – the latter two especially for Telangana. By raising these concerns regarding agrarian distress, one is labelled anti-development.

The political class is based on 'short-termism' whereby programs that are put out are election-based (a period of a few years) rather than having a long range focus. Telangana should have a vision and imagine a potential to be enhanced.

7.3 POLICY CRITIQUES

- There is less emphasis on groundwater recharge over borewell digging. MK should prioritize tanks with structural cracks.
- High premiums for high risk crops such as cotton do not motivate one to take up crop insurance. Furthermore, the premium is to be paid even before the crop is sown.
- The 'doubling farmers' incomes' is incorrect for Telangana as our baseline is off; the average household income is 20% lower than the national average. Agriculture must grow by 120-127% to reach the projected doubling, and currently it is at 3%.
- Seed corporations are taking over production in place of the agricultural and horticultural universities. Even though 60% of seeds are produced in Telangana, the benefits of this production are not being distributed to the producers and consumers (i.e. farmers).

7.4 POLICY RECOMMENDATIONS

Many points were raised with regards to bettering the implementation of various programs and policies, as well as new proposals to deal with and build drought resilience. Many of them feed into the aforementioned points, but the specific recommendations are given below.

Institutions

- Innovation to adapt to drought that goes beyond technology and toward institutions, specifically those related to how farmers manage. For example, *pani panchayats*. The aim should be to scale up and draw lessons from these institutions.
- In the context DFI, better alternatives such as MSP and Crop Insurance should be given. The ecosystem is also in need of attention whereby farmers should be incentivized for better use of water.
- There must be a strategy at the mandal level, with a committee there meets regularly. There was a Telangana Drought Policy draft drawn up 3 years ago, but it has since lapsed reflecting a negligence from the government's side.
- Institutions need to be built, specifically including things like grievance redressal so as to ensure a revamping for public support systems.

Assets

- Land preparation is needed, for example, to counter the condition if there is excess rainfall followed by no rainfall, regardless of soil type.
- Inexpensive contour dig furrows can allow water to percolate and thus extend moisture to 5 rows.
- Focus should be on farm ponds and borewell recharge structures as these give good results.
- A shift from wage to asset creation is important. In 487 mandals, 50% water stress condition is there and thus requires water conservation and artificial recharge so percolation can happen.
- Watershed development in hilly areas, where there may be decent rain but no tanks and therefore the water level would get affected after the rains.

Cropping

- Crop Contingency Plans come into effect once failure has already happened. Crops are lost both during drought and normal years, and that therefore should be a solution to drought before and not after drought.
- Strong emphasis should be given cluster approach of crop colonies which are based on science, spatiality, NRSA data, culture, local wisdom, and soil. These crops would be part of drought proofing. Agriculture is linked to the market, so the government must take a cluster approach otherwise the corporations will dominate. Drought-resilient seeds and NREGA should be linked with this, and the lack of awareness in technology, in schemes should be dealt with to bring change in cropping pattern. The cluster approach must consider the resources available to the farmer.
- Planning crops based on agro-ecological regions is important. The policy should be based on agro-climates, new seed varieties which can be grown based on the seasonal conditions.
- The cropping pattern for both drought and normal years need to looked at; *Ragi* and *Korra* are perfect crops for drought and can be promoted, intercropped, given market support, and used scientifically.

Other

- Since 85% of farmers are small and marginal, policy must concentrate on them. This includes bringing awareness regarding harvests, custom hiring centers, small implements etc.
- Judicious utilization through social norms needs work as well so that water can be used for all purposes.

7.5 RESEARCH DEBATES

There was a debate raised of regarding the starting point of this kind of research. It was said that research needs to start with the farmers' perspective and that their needs should form the initial understanding, rather than what the policy says. However, since there was a need to understand the policy to see what is not working and to propose recommendations, as well as to engage in dialogue with the government, the project for the moment was largely based on policy.

It was added that farmers' decisions must also be seen in the context of the media/industry as well as the lack of extension that creates information asymmetries. However, it was clarified that in first approaching farmers, one can understand their strategy in terms of preparedness, as it is the farmer who knows the risk bearing capacity of her land.

7.6 SUGGESTIONS FOR FUTURE RESEARCH

Again, due to the mixed participation of various sectors and disciplines, various suggestions were made regarding the future direction of this research.

- Using a village as a unit, water budget can be studied, which could include details of rainfall, capture, percolation, water depth, whether there is excess water and need for structures, as well as cropping systems. ICRISAT's mandal-wise climate change index is also useful, and there is a need for new technologies and climate-specific extension.
- Why farmers take up particular technology must be understood. Their preparedness strategy is only water saving, but should also be in managing water. Perception studies can be done through survey research and PRA methods whereby group interviews reveal perceptions of various policies.
- The selection of districts for study should be based on vulnerability mapping and that there needs to be proper consultation with the farmers as the perception of the farmer is needed.
- Drought is too broad of an approach for study. Employment and cropping pattern shifts must also be understood with how people are coping. Further, the role of institutions should be probed.
- The future directions of this project could cover the legal/institutions/acts that require convergences; agro-climatic zones where sampling must be strategic, taking into account farm household decision making as well as agricultural labours' households, to then work back and forth with the policy taking into account the regional differentiations as well as the legal and institutional innovations.

As can be gleaned from the proceedings, the workshop was a space where people from different professional background exchanged various experiences and conclusions with regard to tackling drought. Several comments and critiques regarding the drought policy study was raised, specifically the lack of recommendations, the need for a more robust methodology, as well as to take into account farmer perceptions. The Policy Panel gave government officials a platform to discuss how drought intersects in their respective departments as well as allowed other participants to directly ask policy related questions, whereas the Methodology and Implementation Panel allowed a more interdisciplinary discussion where the

current problems with Telangana with regard to drought and agriculture were raised. The discussions also enabled certain debates particularly that of top down vs. bottom up approach to research as well as the lack of integration of social science and scientific research with policy.

8 | EMERGENT ISSUES AND WAYS FORWARD

The findings from this study are best to be understood as critiques and questions posed for a fledgling government. While the movement to form the state has been relentless in its articulation of past resource neglect, the main question in front of Telangana now is how it will overturn its accumulated underdevelopment through its current policies. With this backdrop, drought is seen a slow-brewing disaster, aggravated by socio-economic inequities as well as policy neglect, thereby producing an overall condition of backwardness.

Therefore, if man-made factors can increase a region's vulnerability to drought, then there are corrective measures and policies that can surely build a region's resilience to drought – including addressing socio-economic inequality. To this end, this study has raised emergent issues and ways forward under the following themes; 1) identifying the gaps within policy research, 2) posing recommendations for the role of social science in drought research, and finally 3) raising issues of implementation.

8.1 ADDRESSING POLICY RESEARCH GAPS

Spatial Differentiation

As various policies were scrutinized in order to understand the drought policy environment, a few gaps stood out that bear further consideration through various methods. Firstly, while the planning around drought overlaps with that for rainfed, dryland, arid/semi-arid regions, there exists a lack of a spatially differentiated understanding of drought. **Considerations of agro-climates, bedrock/aquifer, soil type, as well as socio-economic conditions** will vary the degree of drought and the subsequent resilience measures. Thus, one useful method to address this issue is to develop an in-depth atlas of drought based on agro-climatic region based data which would include field-level responses, coping mechanisms, perceptions of drought. These could further lead to policy briefs which take into account spatial differences.

Mainstreaming Drought

The multi-sectoral nature of drought has been sufficiently emphasized throughout this study. Still, it is reiterated here the need to link different sectors in drought, not just through convergence of programs and funding under different government departments but to perform **critical appraisals of various programs and schemes keeping in mind the broader context of building drought resilience**. For example, the approach to watershed programs assumes the existence of water and therefore does not plan for scarcity, and similarly under MK, the adverse effect of rainfall scarcity on tanks is not articulated. Without these linkages to drought in various programs to claim to mitigate drought or 'drought-proof', blaring gaps will arise and thus weakening the effectiveness of the policy.

Ground-Truthing

Lastly, there is a lack of **understanding of farmer decision-making** which is an essential pre-requisite to forming or improving any program or policy. Taking into account farmers of various class and caste backgrounds, the particular ways farm households comprising different genders and ages take decisions are important to ensure adequate and appropriate policy design that is also inclusive. Thus, understanding decision-making frameworks through socio-economic perception studies may be one method through which this gap can be thoroughly addressed.

8.2 WHITHER SOCIAL SCIENCE?

The Context of Technology

Drought has historically been seen as a disaster requiring particular structural treatment – be in preparedness and monitoring or the doling out of food and welfare. However as the considerations regarding drought are now aligning with the brewing agrarian distress under neoliberalism, the role of social science has even more scope than before. While new technologies in irrigation and agriculture are attractive policy options, the questions posed by the social scientists are essential to actualising their effective and equitable implementation. What kind of technology builds resilience to drought? Who gets to access technology in terms of caste, class, and gender identity? The point being made here is that drought research must not just include the perspective of social science i.e. interdisciplinary, but integrate it with scientific methodology so as to produce mutually desired technology and outputs.

The Pedagogy of Extension

For example, there is a need for agriculture research in terms of developing seeds and practices to be more socially relevant, specifically through more inclusive extension modules. Since extension is the way through which government agricultural technology reaches farmers, it can further support the policy process if there is more of an inclusive spread of appropriate technology. These inclusive extension modules should take into account soil types, level of irrigation, agro-climes, as well as the needs of different kinds of farmers. In this respect, social science can add to the methodology of extension by questioning, challenging, and identifying limitations.

Opening Lines of Communication

Lastly, the accessibility of policy to social science researchers must expand such that there opens an interface between the government and the public. The use of mixed methods (both quantitative and qualitative) as well as conducting field studies at different scales can also contribute to a more accessible policy. The government data therefore must be made available to public so that research organisations, academic, and individuals can be engaged with the policy.

8.3 POLICY IN ACTION

The Responsibility of Awareness

An improperly implemented policy can be seen to negate the original intent of the policy. Therefore, while the process of implementation was less of a focus in this study, the effectiveness of any policy lies in its quantitative and qualitative extent of coverage. To that regard, the generalised issue that is often raised is that of awareness; however rather than discussing it as an inherent problem of the masses (e.g. "farmers are uneducated") it must be understood as a symptom of policy neglect in its own. Certain schemes highlight the lack of awareness aspect for example PMFBY, however similar to how mass rural campaigns emerged to increase awareness of NREGA it is indeed possible if the proper mobilising forces exist. Methods of increasing awareness include *yatras*, booklets in vernacular, and village-level campaigning.

The What and How of Training

Capacity building is another aspect of implementation that is undertaken through trainings with various groups. They are often are ineffectual as they are done in name only, however there is scope to improve by testing out different modules, making them more participatory by taking into account the regional and social context. The issues that can be taken up with respect to drought and water scarcity include managing water usage in schools, the issues of students who dropout due to distress migration, menstrual health, as well as caste discrimination in water access. Furthermore, the creation of a drought network at the state and country level with an interdisciplinary focus could also play a role in identifying issues and methods for capacity building.

Policy is Immersed in the Social

As a final point with regard to implementation issues, it is seen more and more that the role of women is being recognised in policy. However, this needs to be strengthened such that women are not recognised in name only, but are included in economic decision-making. It is well known women's roles in food and nutrition security, and therefore implementation of drought related policy must not remain neutral to the context of gender, caste, and class.

BIBLIOGRAPHY AND REFERENCES

RESEARCH REPORTS AND LITERATURE

Agarwal, Nikhit Kumar (2017): "Mobilisation in Vidarbha: A Comparative Study", Economic and Political Weekly, Vol 42(39), 30 September 2017.

Alary, V (1999): "Rice Cultivation in Telangana: Comparative Study in Irrigated and Non-Irrigated Zones", Economic and Political Weekly, 34(23): pp. 1402-1404.

Altheide, D., Coyle, M., DeVriese, K., Schneider, C. (2008): "Emergent qualitative document analysis", in Handbook of emergent methods: pp 127-151.

Arora, VPS (2013): "Agricultural Policies in India: retrospect and Prospect", Agricultural Economics Research Review. 26 (2): pp 135-157.

Bowen, Glenn A. (2009): "Document Analysis as a Qualitative Research Method", Qualitative Research Journal, 9(2): pp. 27-40.

Chand, R (2006): "India's National Agricultural Policy: A Critique", accessed online http://www.spandan-india.org/cms/data/Article/A2015330162 93_20.pdf.

Dantwala, ML "Agricultural Policy in India Since Independence". Pp 276-294.

Dey, K and Debasish, M (2017): "Agriculture Insurance in India: Promise Pitfalls, and the Way Forward", Economic and Political Weekly. Vol LII, No 52: pp 88-96.

Dhoot, S (2006): "National Agricultural Policy – A Critical Evaluation", CUTS International Briefing Paper. 2006.

Haragopal, G. (2010): "The Telangana People's Movements - The Unfolding Political Culture", Economic and Political Weekly, 45(42): pp 51-60.

Jairath, J., & Ballabh, V. (2008): "Droughts and integrated water resource management in South Asia: Issues, alternatives, and futures", New Delhi: SAGE Publications.

Jhabvala, R., & Standing, G. (2010): "Targeting to the 'Poor': Clogged Pipes and Bureaucratic Blinkers", *Economic and Political Weekly* 45(26): pp 239-246.

Kannabiran, K, SR Ramdas, N Madhusudhan, S Ashalatha, and M Pavan Kumar (2010): "On the Telangana Trail", Economic and Political Weekly. 45(13): pp. 69-82.

Kiran. S & M A Qayum, (2008): "What farmers reaped growing Bt cotton- Profits or Problem??" South Against Genetic Engineering Deccan Development Society; pp 2.

Louis, Elizabeth (2015): "We Plant Only Cotton to Maximize Our Earnings": The Paradox of Food Sovereignty in Rural Telangana, India" The Professional Geographer, 67(4): pp 586-594.

Mathur, K., & Jayal, N. G. (1993): "Drought, policy and politics in India: the need for a long-term perspective", Sage Publications.

Nag, Kingshuk (2011): "Battleground Telangana: Chronicle of an Agitation". Harper Collins: NOIDA, India.

P V Sateesh, (2003): "Finally I have seen Bt cotton", Seedling, January 2003, GRAIN.

Ramakumar, R. (2008): "Contextualizing Disaster Studies: Socioeconomic Vulnerabilities in India", Presentation at Researching Disasters Conference, at Tata Institute, Mumbai, 4 February.

Rathore, M.S (2005): "State level analysis of drought policies and impacts in Rajasthan, India", Working paper 93, International Water Management Institute, Colombo, Srilanka.

Reddy, AA, Ch Radhika Rani, T Cadman, TP Reddy, M Battarai, and AN Reddy (2016): "Rural Transformation of a Village in Telangana, A Study of Dokur since 1970s", International Journal of Rural Management 12(2): pp 143-178.

Samra, J.S (2004): "Review and Analysis of Drought Monitoring, Declaration and Management in India", Working

Paper 84, International Water Management Institute, Colombo, Sri Lanka.

Simhadri, S (1997): "River Water Politics in Drought-Prone Telangana", Economic and Political Weekly, 32(37): pp 2315-2317.

Swaminathan, MS (2016): "National Policy of Farmers Ten Years Later", Review of Agrarian Studies, 6(1): pp 133-144.

Swaraj Abhiyan v. Union of India (Writ petition (Civil) No. 857 of 2015 (Supreme Court 11/5/2016).

UNICEF (2016): "When Coping Crumples: A Rapid Assessment of the Impact of Drought on Children and Women in India", Disaster Risk Reduction Section, UNICEF India.

UNISDR (2015): "Global assessment report on disaster risk reduction 2015", United Nations Office for Disaster Risk Reduction (UNISDR).

Vakulabharanam, V (2004): "Agricultural Growth and Irrigation in Telangana: A Review of Evidence", Economic and Political Weekly: pp 1421-1426.

Venkatanarayana M and Varinder J (2004): "Telangana's Agricultural Growth Experience", Economic and Political Weekly, May 29, 2004: pp 2319-2320.

Venkatesh (2012): "Political Economy of Agrarian Distress in Telangana: A Study of Farmers' Suicides in Mahabubnagar District (1995-2010)". PhD Thesis. Centre for Political Studies, JNU. 2012.

Venkatesh. V (2014):." Economic Liberalisation and Farmers' Suicides in Andhra Pradesh (1995-2014)", South Asia Research Vol. 37(2): 194-212.

Wilhite, D. A., & Glantz, M. H. (1985): "Understanding: the drought phenomenon: the role of definitions", Water international, 10(3): pp 111-120.

BIBLIOGRAPHY OF POLICY DOCUMENTS

Acts/Bills

- GoAP (1997): Andhra Pradesh Farmers' Management of Irrigation Systems Act, 1997
- GoAP (2002): The Andhra Pradesh Water, Land and Trees Act, 2002
- GoI (1974): Water (Prevention and Control of Pollution) Act 1974
- GoI (2005a): National Disaster Management Act 2005
- GoI (2005b): National Rural Employment Guarantee Act 2005
- GoI (2013): National Food Security Act 2013
- GoI (2016a): Model Bill for Conservation, Protection, Regulation and Management of Groundwater Draft 2016
- Goi (2016b): National Water Framework Bill Draft 2016

Policies/Mission/Manuals

Address by Governor of Telangana. Telangana Legislature. 2014-2017.

GoAP (2008): "Andhra Pradesh State Water Policy", Irrigation and CAD Department, Govt. of Andhra Pradesh.

GoAP. Budget Speeches (1970-2013) accessed online at https://www.apfinance.gov.in/pbs.html .

GoI (1983): "National Health Policy 1983", Ministry of Health and Family Welfare, Govt. of India.

GoI (1987): National Water Policy 1987. Ministry of Water Resources, Govt. of India.

GoI (2000): National Agriculture Policy. Ministry of Agriculture and Cooperation, Govt. Of India. accessed online at http://rrtd.nic.in/agriculture.html.

GoI (2002a): "National Health Policy 2002", Ministry of Health and Family Welfare, Govt. of India.

GoI (2002b): National Water Policy 2002. Ministry of Water Resources, Govt. of India.

GoI (2006a): National Environment Policy 2006, Ministry of Environment and Forests, Govt. of India.

GoI (2007): National Policy for Farmers 2007. Ministry of Agriculture, Govt. of India.

GoI (2008a): "National action plan on climate change (NAPCC)", Prime Minister's Council on Climate Change, Govt. of India.

GoI (2008b): "National Water Mission", Comprehensive Mission Document Vol I and II, Ministry of Water Resources, Govt. of India.

GoI (2009a): "Manual for Drought Management 2009", Ministry of Agriculture, Govt. of India.

GoI (2009b): National Disaster Management Policy 2009.

GoI (2010a): "National Disaster Management Guidelines – Management of Drought", National Disaster Management Authority, Govt. of India.

GoI (2010b): "National Mission on Strategic Knowledge for Climate Change", Mission Document, Ministry of Science and Technology, Govt. of India.

GoI (2012): National Water Policy 2012. Ministry of Water Resources, Govt. of India.

GoI (2014a): "National Mission for Sustainable Agriculture", Operational Guidelines, Ministry of Agriculture, Govt. of India.

GoI (2015a): "National Rural Livelihoods Mission", Mission Document, Ministry of Rural Development, Govt. of India.

GoI (2016c): "Manual for Drought Management 2016", Ministry of Agriculture and Farmers Welfare, Govt. of India.

GoI (2017a): "Crisis Management Plan Drought (National)", Ministry of Agriculture and Farmers Welfare, Govt. of India.

GoI (2017b): "National Health Policy 2017", Ministry of Health and Family Welfare, Govt. of India.

GoT (2016a): "Draft Drought Management Manual for Telangana State", Govt. of Telangana.

GoT (2017a): "State Action Plan on Climate Change for Telangana State", EEnvironment Protection Training and Research Institute, Govt. of Telangana.

GoT. Budget Speeches, 2014-2017. Government of Telangana accessed online at https://finance.telangana.gov.in/FM-Budget-Speech.html.

Government Reports

"Task Force Report: Agriculture Challenges and Way Forward". Submitted to NITI Aayog. Government of Telangana, Agriculture & Cooperation Deparment.

CAG (2017): "Report of the Comptroller and Auditor General of India on Performance Audit of agriculture Crop Insurance Schemes". Ministry of Agriculture and Farmers' Welfare. Government of India.

GoAP (1999): "AP Vision 2020", Govt. of Andhra Pradesh.

GoAP (2003): "Andhra Pradesh Water Vision", Water Conservation Mission, Govt. of Andhra Pradesh.

GoAP (2005): "Report of the Commission on Farmers' Welfare, Government of Andhra Pradesh".

GoI (1981): "Report on Development of Drought Prone Area", (Sivaraman Committee) National Committee on the Development of Backward Areas, Planning Commission, Govt. of India.

GoI (1990): "The Drought of 1987 – Response and Management", Ministry of Agriculture, Govt. of India.

GoI (1994): "Report of the Technical Committee on Drought Prone Areas Programmes and Desert. Development Programme", (Hanumantha Rao Committee), Ministry of Rural Development, Govt. of India.

GoI (2017c). Notification S.O. 37559(E). 27th November 2017, Ministry of Finance (regarding 15th Finance

Commission).

GoI (2017d): "Report of the Committee on Doubling Farmers' Income Volume II - Status of Farmers' Income: Strategies for Accelerated Growth", Ministry of Agriculture and Farmers Welfare, Govt. of India.

GoI (2017e): "Report of the Committee on Doubling Farmers' Income Volume V – Sustainability Concerns in Agriculture", Ministry of Agriculture and Farmers Welfare, Govt. of India.

GoT (2014): "Reinventing Telangana. Socio Economic Outlook 2014". Planning Department. Government of Telangana.

GoT (2015): "Reinventing Telangana: The First Steps. Socio Economic Outlook 2015". Planning Deparment. Government of Telangana.

GoT (2016b): "Reinventing Telangana: The Way Forward. Socio Economic Outlook 2016". Planning department. Government of Telangana.

GoT (2017b): "Reinventing Telangana: Looking Back and Looking Ahead. Socio Economic Outlook 2017". Planning Department, Government of Telangana.

Indian Famine Commission (1880): "Report of the Indian famine commission".

Manjunatha AV and KB Ramappa (2017): "Farmer Suicides An All India Study. Agriculture Development and Rural Transformation Centre Report", Institution for Social and Economic Change, Karnataka. Study Commissioned by Department of Agriculture, Cooperation & Farmers Wrlfare, GoI, New Delhi. July 2017.

Narang, KS (1977): "Highlights of the Report of the National Commission on Agriculture", Controller of Publications, Delhi, 1977.

Reddy AA, Reddy GP, Radhika Rani Ch, Reddy AN and Bantilan C. (2014): "Regional Disparities in Rural and Agricultural Development in Undivided Andhra Pradesh, India", Working Paper Series No. 47, International Crops Research Institute for the Semi-Arid Tropics.

Programme/Scheme related documents

GoI (2003): Hariyali Guidelines for Watershed management, Ministry of Rural Development, Govt. of India, http://dolr.nic.in/HariyaliGuidelines.htm, accessed on 20th September 2017.

GoI (2006b): "From Hariyali to Neeranchal: Report of the Technical Committee on Watershed Programmes in India", (Parthasarathy Committee), Ministry of Rural Development, Givt. Of India

GoI (2008c): "Common Guidelines for Watershed Development Projects", National Rainfed Area Authority, Govt. of India.

GoI (2014b): "Rashtriya Krishi Vigyan Yojana – Operational Guidelines for XIIth Five Year Plan", Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India.

GoI (2015b): "Operational Guidelines Of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)", Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India.

GoI (2016d): "Guidelines for Flexi-Funds within Centrally Sponsored Schemes", Office Memorandum, F.No. 55(5)/PF-II/2011, Ministry of Finance, Government of India.

GoI (2016e): Lok Sabha Starred Question No. *87, Ministry of Earth Sciences, Govt. of India.

GoT (2011): "Indira Jala Prabha – Project for irrigation in 10 lakh acres of SC/ST land as a convergence project with MGNREGS. 2011." Government Order G.O. Ms. No. 315. Panchayat Raj and Rural Development Department, Govt. of Telangana.

GoT (2013): "NREGS – AP and Other developmental schemes – Revision of Rural Statndard Schedule of Rates. 2013". Givernment Order G.O. Ms. No. 107, Panchayat Raj and Rural Development Department, Govt. of Telangana.

GoT (2014): "Sanction of differential subsidy under the TSMIP Guidelines for Implementation of the Scheme from the year 2014-15", Government Order G.O. MS. No. 28, Agriculture and Cooperation Department, Govt. of Telangana.

GoT (2015): The Telangana State Disaster Management Rules – 2015, Government Order, G.O.MS.No.7, Revenue (DM.I) Department dated 02/12/2015.

GoT (2016c): "Budget Release Order towards balance of Recurring Central Assistance for Drought Affected Areas for National Programme of Mid Day Meal in Schools for the year 2016-17". Government Order G.O. RT. No. 88. School Education Department. Govt. of Telangana.

GoT (2016d): "Budget Release Order towards meeting the expenditure of egg cost for providing three eggs per week to the students under Mid Day Meal Scheme during the year 2016-17". Government Order G.O. RT. No. 107. School Education Department. Govt. of Telangana.

GoT (2017c): "Purchase of Sannabiyaam (Steamed) and Sannabiyyam (raw) for supply under the Mid Day Meals Scheme and Hostels during the Kharif Marketing Season 2017-18." Government Order G.O. Ms. No. 25. Consumer Affairs, Food and Civil Supplies Deparment. Govt. of Telangana.

GoT (2017d): "Scale of Distribution of PDS Kerosene – Revision of scale of distribution from Dec 2017 onwards". Government Order G.O. Ms. No. 27. Consumer Affairs, Food & Civil Supplies Department. Govt. of Telangana.

Niti Ayog (2015): "Report of the Sub-Group of Chief Ministers on Rationalisation of Centrally Sponsored Schemes", National Institute for Transforming India, Govt. of India.

PIB (2011): "Implementation of BRGF", 12th August 2011, Press Information Bureau, Ministry of Panchayati Raj, Govt. of India.

PIB (2016a): "Cabinet approves recommendations of the Sub-Group of Chief Minsters on Rationalisation of Centrally Sponsored Schemes", 3RD August 2016, Press Information Bureau, Cabinet, Government of India

PIB (2016b): "National Disaster Mitigation Fund", 3rd August 2016, Press Information Bureau, Ministry of Home Affairs, Govt. of India.

PIB (2017): "Water Management Index", Press Information Bureau (06 April 2017), Ministry of Water Resources, Government of India.

RBI (2015): "State Finances A Study of Budgets", Reserve Bank of India.

RBI (2016): "State Finances A Study of Budgets", Reserve Bank of India.

RS (2011): The Backward Areas Development Board Bill, 2011. Rajya Sabha (To be introduced in Lok Sabha), Bill No. 83.

ANNEXURES

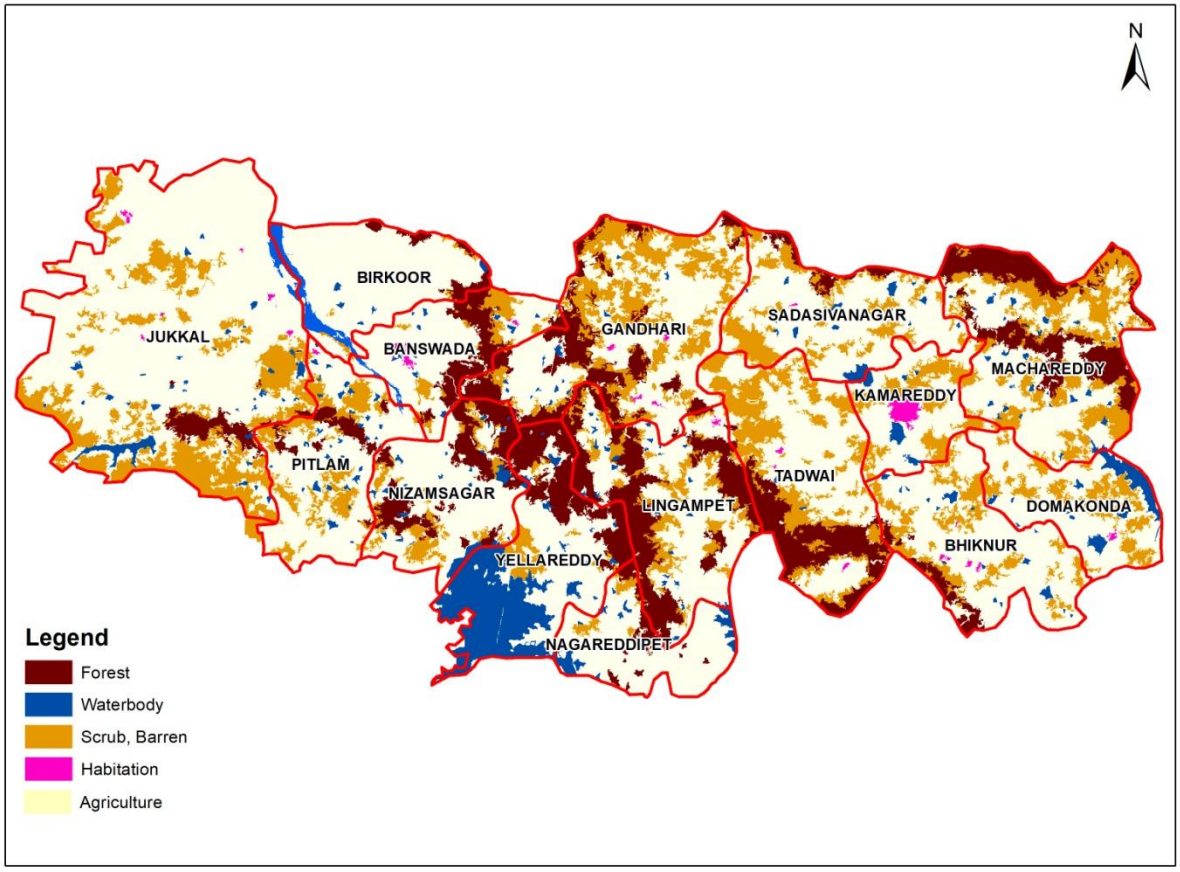
Annex 1a – Documents used for Policy Analysis (National)

SECTOR	DOCUMENT TYPE	POLICY DOCUMENT
Disaster Management	Act	National Disaster Management Act 2005
	Policy	National Disaster Management Policy 2009
	Action Plan	National Disaster Management Plan 2016
	Five Year Plan	10th Five Year Plan (2002-2007) Chapter 7 "Disaster Management"
	Five Year Plan	11th Five Year Plan (2007-2012) Chapter 9 "Environment and Climate Change: Disaster Management"
Drought	Commissioned Reports	Famine Commission 1901
	Manual/Handbook	National Drought Manual 2009
	Manual/Handbook	National Drought Manual 2016
	Guideline	National Guidelines on Drought Management, 2010
	Supreme Court Judgement	Supreme Court Judgment on Writ Petition (Civil) on Drought 2015: *Swaraj Abhiyan vs Union of India*
Water	Policy	National Water Policy 1987, 2002, 2012
	Regulatory Bills/Acts	National Water Framework Bill, 2016
	Regulatory Bills/Acts	Model Groundwater Conservation and Protection Bill, 2016
	Regulatory Bills/Acts	The Water (Prevention and Control of Pollution) Act, 1974
	Mission Document	National Water Mission
	Five Year Plans	1st - 12th Five Year Plans: Economic Sector Chapters on Irrigation/Water
Agriculture	Policy	National Policy for Farmers, 2007
	Commissioned Reports	Swaminathan Commission Report 2006
	Five Year Plan	1st to 12th Five Year Plans: Economic Sector Chapters on Agriculture
	Operational Guidelines	National Mission on Sustainable Agriculture
	Strategy Papers	Draft volumes of the *"Strategy for Doubling Farmers' Income by 2022"*
Climate Change	Action Plan	National Action Plan for Climate Change, 2008
Environment	Policy	National Environment Policy 2006
Rural Development	Five Year Plan	5th to 12th Five Year Plan Chapters related to Rural Development, Employment, Drinking water and sanitation
	Commissioned Reports	National Committee on the Development of Backward Areas (1981)
	Commissioned Reports	Hanumantha Rao Committee Report (1995)
	Commissioned Reports	Parthasarathy Committee Report (2006)
	Guidelines	Watershed Programme/DPAP Guidelines 2001, 2003, 2008, 2016
Food Security	Regulatory Bills/Acts	National Food Security Act 2013
Health	Policy	National Health Policy 1983, 2002, 2017

Annex 1b – Documents used for Policy Analysis (Telangana)

Telangana Policy Documents
Budget Speeches 1970 – 2017
Governor's Speeches 2014-2017
Telangana Socioeconomic Outlooks 2014-2017
Legislative Assembly Speeches (Mission Bhagiratha and Mission Kakatiya)
Agriculture Challenges and Way Forward: Task Force Report to Niti Aayog, Dept. of Agric. Telangana
Report of the Commission on Farmers' Welfare, Government of Andhra Pradesh 2005
A.P Vision 2020 (1999)
A.P Water Vision (2003)
A.P State Water Policy (2008)

Annex 2a – Landuse map of Kamareddy District



Annex 2b – Water, Agriculture, and Employment Related Characteristics of mandals in Kamareddy Dstrict

MANDALS	%GIA to GCA	% NIA under GW	% hhs with Drinking water GW	% hhs with Treated tapwater	% hhs with Untreated tapwater	% total workers in agric	%total workers in main agric	Total vegetables	Cotton	Maize	Oilseeds	Paddy	Pulses	Sugarcane	Jowar	Fodder	Total GCA under selected crops
BANSWADA	99.77	0.00	20.2	58.5	20.4	77.33	58.96				14.58	85.14	0.23	0.05			100.0
BHIKNOOR	71.16	99.57	15.6	25.2	55.1	60.59	53.80		7.37	35.89		39.26	0.03	17.44			100.0
BICHKUNDA	12.39	100.00	26.6	17.5	53	80.74	61.00	0.71	9.33	5.60	10.36	10.95	56.28	0.18	3.28		96.7
BIRKOOR	99.57	14.56	16.7	57.5	23.2	84.60	59.84			4.56	0.50	94.73		0.01			99.8
DOMAKONDA	50.72	99.44	23.8	33.9	39.3	51.22	40.50		8.09	34.24	7.70	31.75	2.65	15.56			100.0
GANDHARI	32.06	100.00	48.3	24	25.7	81.04	66.25			44.21	40.92	14.19	0.61	0.07			100.0
JUKKAL	3.07	0.00	51.6	23.4	22	89.94	68.54	0.33	22.59	0.79	9.62	3.07	53.19		9.31		98.9
KAMAREDDY	83.00	95.81	21.4	47.4	28	55.34	50.42	0.03		24.19		55.95	1.53	17.50		0.03	99.2
LINGAMPET	36.58	85.10	32.6	47.8	19	85.00	71.73		20.07	35.76	21.08	13.73		9.36			100.0
MACHAREDDY	55.19	99.87	33.6	42.4	23.3	70.03	57.62		2.03	47.08	3.46	30.17	0.43	16.78			99.9
MADNOOR	13.53	100.00	30.3	45.7	22.3	83.57	50.76		9.20		15.21	13.16	51.91		8.02		97.5
NAGAREDDIPET	84.11	68.71	15.1	18.8	64.7	84.25	54.00			35.17	7.19	56.17		1.47			100.0
NIZAMSAGAR	99.67	38.45	19.5	18.5	61.5	85.70	63.03			2.98	0.33	96.47		0.22			100.0
PITLAM	14.85	100.00	28.5	31	35	82.41	64.86		15.29	20.35	18.39	14.85	29.55		1.57		100.0
SADASIVANAGAR	14.01	100.00	23.3	11	62.6	70.65	62.42			50.78	44.26	4.97					100.0
TADWAI	15.61	96.95	41.1	37.6	20.5	78.30	73.97	1.90	12.33	51.53	8.04	10.10	11.42	0.36			95.7
YELLAREDDY	95.26	77.36	17.2	13.8	68.8	87.32	79.17	0.12		32.53	0.05	66.80	0.02	0.08			99.6

Annex 3 – Changes in drought manual 2009 – 2016

Category	2009	2016
Rainfall-led droughts	Conditions of drought appear when the rainfall is deficient in relation to the statistical multi-year average for a region, over an extended period of a season or year, or even more.	"Conditions of drought appear ***primarily, though not solely***, on account of substantial rainfall deviation from the normal and / or the skewed nature of the spatial / temporal distribution.."
		"drought stems from a deficiency or erratic distribution in rainfall but the spread and intensity of the calamity is contingent on several factors, including the status of surface and ground water resources, agro-climatic features, cropping choices and patterns, socio-economic vulnerabilities of the local population etc."
Successive droughts	Acknowledgement of "recurring droughts"	Focus on "successive droughts"
Rainfall indicator	Only rainfall deviation for season/year	Included dry spells and Standardised Precipitation Index (SPI) in addition to rainfall deviation
Crop indicator for drought	Drought conditions could be said to exist if the total sowing area of kharif crops is less than **50%** of the total **cultivable area** by the end of July/August	Drought conditions could be said to exist if the total sown area under kharif crops was less than **33.3%** of the total **normal sown area** by the end of July/August,
Vegetation indicator	Only NDVI/NDWI	Vegetation Condition Index (VCI) included in addition to simple NDVI/NDWI
	Exact categories left to the states to determine	Discreet categorisations and matrix for various indicators provided
Soil moisture	Only MAI	Percent Available Soil Moisture (PASM) included along with MAI
Vegetation	Only four indicators (rainfall deviation, NDVI, MAI and area sown)	Hydrological indicators included as a fifth indicator
Drought Declaration	Rainfall deficiency, extent of area sown, normalised difference vegetation index, and moisture adequacy index are recommended as the four standard monitoring tools which could be applied in combination for drought declaration. Atleast three indicators or index values could be considered for drought declaration.	- More nuanced declaration process offered giving matrices, categories and giving rainfall based indicators the highest weightage by assigning it as "first drought trigger" and others 'impact indicators' as "trigger 2". - The States may consider any three of the four types of the Impact Indicators (one from each) for assessment of drought, the intensity of the calamity and make a judgement. - Measures for identifying levels of severity of drought outlined
Declaration period	Ideally, states should declare drought in October. Time periods for the rest of the process of relief funding decision, disbursement of NCCF and disbursement for relief not provided.	States will notify Kharif drought by 30 October and the Rabi drought by 31 March. Detailed timelines for implementation of relief outlined.
Instruments of relief transfer		Introduced a focus on Direct Benefits Transfer to beneficiaries State Governments should invariably use DBT to provide various kinds of beneficiary oriented assistance under SDRF/NDRF like gratuitous relief, assistance to farmers for land/crop loss, assistance to small and marginal farmers for replacement of animals, assistance to fishermen, assistance to handicraft artisans and assistance for houses damaged etc.
Early responses		Crisis Management Plans (annual national level by

and Real time implementation		Ministry of Agriculture) and District Agriculture Contingency Plans (district level by CRIDA) introduced. Initial preparedness and responses, real time implementation of contingency plans included and vastly extended. Detailed support systems for DACPs.
Relief employment	Guidelines offered for working hours, wage policy, cash and foodgrain ratios of payment, labour camps etc provided.	Highlights provision under MNREGA to provide an additional 50 days of unskilled manual work in rural areas where drought or natural calamities have been notified. Adds PMKSY to additional programmes for relief employment but excluded IWMP Nrega provides the wage norms for all relief employment. (*Food for work replaced by cash payments*)
Provision of water supply	Reservoir management: while it states that "state governments must declare the policy for laying down the priorities for use of reservoir storage"..it outrightly states that the first priority needs to be given to the provision of drinking water" and that "after taking into account the availability of water, decide upon other priorities: augmentation of existing water supply scheme of any town, industrial and commercial use, power plants and irrigation"	"The State Government is advised to enunciate the policy for laying down the priorities for use of reservoir storage for drinking, irrigation, industry, power plants, recreation, and other commercial uses."…but it stops from outrightly stating the priority and only reiterates that "The Collector must determine the quantity of water that is required to be reserved for drinking water purposes"
Mid Day Meal schemes		The scheme also provides for giving mid day meals during summer vacation in drought affected areas.
Mitigation measures	Integrated Watershed Management Programme	Pradhan Mantri Krishi Sinchayi Yojana (PMKSY) National Rainfed Area Programme (NRAP) MGNREGS framework to leverage synergies between Nrega, PMKSY, IWMP, CAD, Water management programmes (*Watershed management works can be taken up independently under MGNREGA where there is no IWMP project sanctioned/proposed and in convergence with IWMP- wherever IWMP project is already sanctioned and proposed (new IWMP Projects*)

Annex 4 – Questionnaire

UNICEF Drought Assessment Project

South Asia Consortium for Interdisciplinary Water Resources Studies
(SaciWATERs)
Secunderabad, Telangana – 500094

Household Level Questionnaire

Household's Characteristics –

Date of survey	
Enumerator name	
Village name	
Mandal name	
Respondent's name, gender & age	
Respondent's educational level	
Respondent's contact number	
Name, Gender & age of head of the hh	
Household size (Excluding out-migrants)	…… (Number of Children (0-14 years):……)
Highest educational level among hh members	
Religion	
Caste and Social Group	
Agricultural land (acre)	Own:…… Leased in:…….. Leased out:……
MGNREGS Job Card	□ Yes □ No
Type of ration card (colour)	
Whether any household member belongs to SHG or Cooperative	□ No □ Yes: SHG/ DWCRA □ Yes: Cooperative □ Yes: Both, SHG/ DWCRA & Cooperative

Sources of household income (rank and specify) –

Source	Rank	Source	Rank	Source	Rank
Cultivation (……..)		Other allied agriculture (……..)		Non-farm labour within the village (……..…..)	
Livestock (……..)		Home-based manufacturing (……..)		Local small business (non-farm) (……..…..)	
Agriculture labour		Long-term migration (Remittances) (……..)		Daily migration to urban areas or other rural centres (……..…..)	
MGNREGS		Seasonal migration to urban areas (remittances) (……..)		Other, specify (e.g. pension, income from leased out land etc.) (……..…..)	

Irrigation –

Q1. What is the usual source of irrigation? Mention the type of ownership in case of borewell and dugwell and give the numbers

(Ownership code: 1. Own; 2. Shared; 3. Borrowed). (Ownership code/ Number)

	No access		Cheruvu/ Kunta		Dugwell (……/……)
	Borewell (……/……)		Purchased water		Other (specify): ……. (……/……)

Q2. Failure of source of irrigation:

Source of irrigation	Depth of dugwell/borewell	Failure of source *(1. No 2. Partial (reduced water yield) 3. No water)*

Q3. What was your coping response to irrigation failure? *(Multiple responses possible)*

□ Did not sow □ Continued cropping in rain-fed condition
□ Changed cropping pattern □ Did not change cropping pattern but reduce area sown
□ Deepening of borewell □ Digging of new borewell
□ Other (specify)……..

Q4. If using cheruvu,

a. Has the cheruvu been treated by Mission Kakatiya? (yes/no)

b. If yes, has the water supply from cheruvu improved? (explain)

c. Has it improved livelihood in general?

□ Fisheries □ Toddy tapping
□ Increased area under borewell irrigation during kharif due to improved water levels
□ Increase in borewell irrigation in rabi season □ Increased area under cheruvu irrigation

d. If no, why do you think mission Kakatiya did not help?

Q5. Do you take any measures for drought proofing during a normal rainfall year? *(Multiple responses possible)*

□ Nothing □ Farm pond on or near farm
□ Recharge pit on or near farm □ Digging open wells beside the bore-well
□ Contour trenching practice □ Mulching techniques for reducing evaporation
□ Use of drip-sprinkler □ Growing less water intensive crops
□ Check dam

Agriculture and other water based livelihoods –

Cropping pattern and crop failure										
Crops grown	Pre-drought			Drought 2015				Post-drought		
	Area sown	Irrigation source (code)	Total produce	Area sown	Irrigation source (code)	Crop failure, if sown (code)	Total produce	Area sown	Irrigation source (code)	Total produce
Kharif										
1										
2										
3										
4										
Rabi										
1										
2										
3										
4										

Code: ***Irrigation source:*** *1. Cheruvu/ Kunta; 2. Dugwell; 3. Borewell; 4. Other (specify); 5. Rain-fed*

Crop damage/failure: *1. No; 2. Partial (Reduced output); 3. Complete*

Q6. Are you involved in any other water based livelihood (yes/no)? If yes, then specify

(e.g. fisheries, livestock, horticulture, plantation, dhobis, crop output trader etc.) ……

a. Was it affected by the drought? If yes, explain how?

Agricultural insurance and credit –

Q7. Did you claim insurance for failed crop/s (yes/ no)? If yes, then specify source –

Source:……

a. If no, then reason-

□ No access to insurance □ Have insurance but did not claim

□ Claimed insurance but did not receive □ Other, specify……..

Access to extension services –

Q8. Did you receive any drought related extension service for agriculture & allied activities (yes/no)?

a. If yes, then when did you receive it:

□ Before the occurrence of drought □ During the drought □ After the drought

b. If yes, then specify the source: □ Govt. □ NGO □ Progressive farmer □ Radio/ Newspaper/ internet/ Television etc. □ Other, specify

Livelihoods during drought –

Q9. What were your sources of income during the drought year? **specify** and **rank**–

Source	Rank	Source	Rank	Source	Rank
Cultivation (……..)		Other allied agriculture (…….....)		Non-farm labour within the village (……..)	
Livestock (……..)		Home-based manufacturing (…….....)		Local small business (non-farm) (…….....)	
Agriculture labour		Long-term migration (…….....)		Daily migration to urban areas or other rural centres (……)	
MGNREGS		Seasonal migration to urban areas (remittances) (……)		Other, specify (e.g. pension, income from leased out land etc.) (……..)	

QI0. How many days of MGNREGS work did all household members collectively do?

Period	Maximum days offered by Govt.	Total days demanded	Total days sanctioned	Total days worked
2015-16 (Drought year)				
2016-17 (Normal year)				

QI1. Are MGNREGS wages usually paid in time i.e. within 15 days (yes/ no)? If no, specify.

a. Was there any delay in payment of wages during the drought season (yes/ no)? If yes, then specify.

b. Was there any delay in payment of wages during the normal season (yes/ no)? If yes, then specify.

QI2. Did you take a loan due to drought (yes/ no)? If yes, then specify the reason and source –

Main reason	Source
Re-sowing after crop damage	
Crop loan for next year	
For repaying of previous loan	
Alternative livelihood	
Household expenditure due to reduced income: 1. Basic monthly food consumption 2. Health & Education 3. Others e.g. marriage, housing (specify)	

Source code:

1. Govt. *2. Private bank* *3. Co-operative society*

4. Local money lender *5. Landlord* *6. Relatives & friends*
7. Other, specify

QI3. Did the govt. give any crop loan waiver during the drought (yes/no)? If yes,

How much loan did you have before 2015 (Rs): ……..

How much loan did the government wave off (Rs): ……..

QI4. Did the government provide any drought relief in the form of fodder/feed (yes/ no)? If yes, then explain –

Food security –

QI5. Where you get your food items from?

Food items	Source code	
	Normal year	Drought year
1. Cereals		
2. Pulses		
3. Fruits and Veg.		
4. Milk, meat, eggs		
5. Edible oil		
6. Kerosene		

Source Code:

1. Ration shop 2. Kirana shop 3. Farm produce 4. Rythu bazar
5. Milk Kendra 6. Other, specify…….

QI6. Do you have any issues with PDS (yes/ no)? If yes, then explain.

QI7. Number of persons in household who access meals from:

Mid-day meal scheme:……. ICDS:……..

Q18. Did you face any issues with meals accessed from MDM/ Anganwadi during drought (yes/ no)?

Issue	Mid-day meal	ICDS
Change in quantity served		
Reduced provision of vegetables/ eggs		
Poor quality of food served		
Food not offered during summer vacations		
Other (specify)		

Access to household water –

Q19. Major source of water (Code) –

Please ask about supplementary source only if the water supply is not sufficient from the primary source.

Use		Normal abundant (After monsoon, 2016)	Normal summer (2017)	Drought (2015-16)
Drinking	Primary			
	Supplementary			
Domestic	Primary			
	Supplementary			

Code: *1. Direct piped water to household from GP; 2. Own borewell/ dugwell; 3. Shared borewell/ dugwell; 4. Public stand-post; 5. RO (PPP); 6. RO (Private); 7. Govt. tanker; 8. Private tanker (exclusive use); 9. Private tanker (shared); 10. Other, specify.*

Q20. Do you use drinking water for cooking purpose also (yes/ no)? If not, then specify the source?

Q21. If you have used government tanker–

a. Frequency of tanker supply:

□ Daily □ Once in two days □ Once in three days □ Once in a week

□ Once in 10 days & more

b. Quality of tanker water:

□ Very poor □ Poor □ Satisfactory □ Good □ Very good

c. Is there a limit to the amount of water that can be taken? Explain.

d. What are the uses of tanker water?

Q.22 If you use RO water, what is the reason:

□ Borewell water source is of poor quality
(explain:……..……..…..)

□ Panchayat tap water is of poor quality (explain e.g. experienced issues with colour, taste, smell; issues exposed through fluoride testing by the govt.
etc.:……..……..…..……..…..)

□ Awareness that RO water is purified and therefore is preferable to local sources

□ Inadequate supply from panchayat sources

Q.23 When Mission Bhagiratha is implemented will you use the water for drinking? (yes/no). If no, why?

Individual Questionnaire (For Man and Woman Separately)

Name of respondent: **Age:** **Relation to head of household:**

Gendered drought impacts, perceptions, and coping strategies – ***Perception code:*** *1. Severe problem* *2.Moderate problem* *3. No Problem* *4. Don't know*

What distress did you face due to drought	Perception *(code)*	How did you cope with the distress?
Insufficient income		□ Claimed insurance (specify source) □ Took loan □ Got government input subsidy □ Sowed lesser land for next cropping □ Land lease out □ Sale of livestock □ Sale of other productive assets (e.g. land, machinery etc.) □ Mortgaging land, jewellery, other assets □ Dependence on household savings □ Reduced expenditure on basic household consumption □ Other (specify)……
Could not afford nutritious food due to higher prices		□ Reduced consumption of eggs/meat □ Reduced consumption of fruits and vegetables □ Increased expenditure on food at the cost of other expenditures □ Increased dependence on MDM/ ICDS □ Depended only on PDS □ Other (specify)……
Health issues due to lack of nutrition		□ Increased dependence on govt. health care □ Increased dependence on private health care □ Other (specify)……
Usual source of drinking/domestic water was not sufficient		□ Had to purchase water for household (RO/Pvt Tanker) □ Dependence on government tanker □ Use less water for bathing

		□ Reduce frequency of water-related household activities □ Drink less water □ Other (specify)……
Increase in time spent in collecting water □ Travelled longer distance to collect water □ Had to make more frequent trips in a day to collect water □ Spent longer time in queues		□ Child had to drop out/absent from school to help in fetching water (specify daughter / son) □ Reduced time for economic activity □ Reduced time for household activity □ Reduced time for leisure □ Other (specify)……
Poor quality of water		□ Had to consume poor quality water □ Purchased RO water □ Other (specify)……
Did not have water in toilets		□ Shifting to open defecation □ Used less water in toilets □ Other (specify)……
Scarce water for school sanitation		□ Girls dropped out of school □ Stayed home for menstrual periods □ Boys resorting to open areas use for sanitation purposes □ Other (specify)……
Livestock suffered due to water and fodder scarcity		□ Sold livestock □ Received fodder as drought relief from government □ Travelled long distance with livestock for pasture/water □ Increased expenditure on fodder from market □ Purchased water for livestock
Children had to drop out of school due to migration for income during drought		
Increased household responsibilities due to men's outmigration		

QI. What in your opinion were the most severe problems faced during drought in 2015? (Write in order of their response)

Annex. 5

LIST OF INVITEES AND PARTICIPANTS: DISSEMINATION WORKSHOP

S.No	NAME	INSTITUTE/UNIVERSITY/ORGANISATION
1.	M. Vijayalaxmi	Assistant Commissioner, Disaster Management, Revenue Department, Telangana
2.	Mallikarjuna Swamy	SE, Rural Development, Telangana
3.	K. Venkateshwarlu	Deputy Director, Horticulture, Telangana
4.	Sunitha Karanam	Assistant Director of Agriculture, WALAMTARI
5.	G.V. Ramanjaneyulu	Director, Centre for Sustainable Agriculture
6.	Amarender Reddy	Director (M&E), MANAGE
7.	K.V. Rao	Sr. Scientist, CRIDA
8.	Vinod Ekbote	Faculty, Centre for Climate and Disaster Management, Dr.MCRHRDI
9.	K. Sreenivas Reddy	Principal Scientist (SWCE)& CCPI (ACRP-Water), ICAR-CRIDA, Santoshnagar
10.	Ravi Kanneganti	Centre for Sustainable Agriculture, Hyderabad
11.	AVR Kesava Rao	ICRISAT
12.	Sheela Prasad	University of Hyderabad
13.	Sujit Kumar Mishra	Council for Social Development
14.	Sreeram Vishnu	Centre for Research on Innovation and Science Policy, Hyderabad
15.	N. Sai Bhaskar Reddy	Environment and Development Professional
16.	C.S. Murthy	NRSC
17.	Pawan Kumar	Mandal Agriculture Officer, Domakonda Mandal, Kamareddy
18.	A. Nageshwara Rao	Centre Head, CMED, TSIPARD
19.	Suman Chandra	Rtd. Director, NIRD
20.	U. Hemantha Kumar	Assistant Professor, Centre for Livelihoods, NIRD
21.	V. Laxman	Research Associate, Dept. of Social Exclusion Studies, EFLU
22.	Sahebrao Sonkamble	NGRI
23.	Shankar Rao Chirala	Council for Social Development, Hyderabad
24.	Venkatesh Vaditya	Professor, EFLU, Hyderabad
25.	K. Vidyullata	Junior Resource Person, CWS, TSIPARD
26.	Nagaiah	NGRI
27.	Karun Kumar Chowdhary	NRSC
28.	Naveen Ramisetty	Activist, Rythu Swarajya Vedika
29.	Manish Maskara	Policy analysis, COCOON Project, SaciWATERs
30.	Divya Veluguri	Centre for Sustainable Agriculture
31.	J. Srinivas	EPTRI
32.	K. Mohan Rao	Addtn PD Kamareddy
33.	V. Muralidhar	PMCHS, Office of Commissioner, Rural Development, Telangana
34.	K. Sailaja	Asst. Director, Agriculture Department, Telangana
35.	Sucharita Sen	SaciWATERs
36.	Shreya Chakraborty	SaciWATERs
37.	Mansi Goyal	SaciWATERs
38.	Manoj Jatav	SaciWATERs
39.	Suchita Jain	SaciWATERs
40.	Sai Kiran	SaciWATERs
41.	Judith Christiana	SaciWATERs

SaciWATERs
South Asia Consortium for Interdisciplinary Water Resources Studies
B - 87, 3rd Avenue | Sainikpuri|
Secunderabad- 500 094 | Telangana | India
Ph +91 40, 27116721
www.saciwaters.org; info@saciwaters.org

unicef
United Nations Children's Fund (DRR)
UNICEF Field Office for Andhra Pradesh, Karnataka and Telangana,
317/A, MLA Colony, Road No:12, Banjara Hills,
Hyderabad, Telangana State – 500034.