

**Managing Distress Migration  
and Enhancing Resilience through  
Climate Appropriate Interventions under  
MGNREGS in Western Odisha**

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Published by : Centurion University of Technology and Management  
At- Ramchandrapur, Po - Jatni, District - Khurda,  
Bhubaneswar 752050,  
Odisha, India

Printed at :Srimandir Offset Pvt. Ltd., Bhubaneswar

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## Abbreviations

DFID	Department for International Cooperation
ICRG	Infrastructure for Climate Resilient Growth
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
PRA	Participatory Rural Appraisal
FGD	Focus Group Discussion
GP	Gram Panchayat
INRM	Integrated Natural Resource Management
CSIR	Council of Scientific and Industrial Research
CES	Center for Environmental Studies
GoI	Government of India
GoO	Government of Odisha
TA	Technical Assistance
IPCC	Intergovernmental Panel on Climate Change
GDP	Gross Domestic Product
IOM	International Organisation on Migration
MoRD	Ministry of Rural Development
DBT	Direct Benefit Transfer
NREGS	National Rural Employment Guarantee Scheme
ISWDS	Indian School of Women's Studies Development
NELM	New Economic Labor Migration
SHG	Self Help Group
NGO	Non Governmental Organisation
MPCE	Monthly Per capita Consumption Expenditure
NSSO	National Sample Survey Organisation
NSS	National Sample Survey



BPL	Below Poverty Line
HH	Household
PR & DW	Panchayati Raj and Drinking Water
WHS	Water Harvesting Systems
PDS	Public Distribution System

## **EXECUTIVE SUMMARY**

Western Odisha has long been prone to distress migration due to the large numbers of landless and marginal farmers living in extreme levels of poverty, skewed land distribution in the face of a degrading natural resource base. Out-migration is a survival strategy adopted by people from the rural areas which is an outcome of erratic monsoons and unstable livelihoods.

A study was undertaken by DFID as part of the Infrastructure for Climate Resilient Growth (ICRG) in India, in four western Odisha districts (Bolangir, Bargarh, Kalahandi and Nuapada). The broad objective of the study was to understand the extent to which climate change has induced distress migration, despite the presence of social protection programmes like the MGNREGS in the area. For MGNREGS to be climate responsive, it is important that all the provisions under the Act are effectively implemented.

The study adopted both qualitative and quantitative approaches for the study. PRA tools, individual migrant household surveys using questionnaires and FGDs were conducted in the selected villages. The sample included three blocks from each of the four districts with high occurrence of migration. Further, two gram panchayats (GP) from each block with two villages from each GP and, twenty five households from each village were identified for the study.

There is a strong association between climate change and distress migration which occurs primarily due to “insufficient income”. Works undertaken by MGNREGS have resulted in arresting migration partially in the districts. People are not able to get more than three weeks of wage work in a year through the programme against their need for seven months. Furthermore, there is little instance of adequate livelihood asset creation, supply chain and enabling systems and institutions in place to smoothen the functioning of MGNREGS. Similarly, convergence with other programmes for creating sustainable livelihoods is not clearly visible. MGNREGS in the study area has been able to generate on an average 21.40 days of wage employment which is much below that is stipulated by the government.

Although the study found that number of village level institutions did exist, they did not specifically respond to activities related to MGNREGS; therefore, the

study recommends that appropriate village level institutions may be formed and strengthened for participatory planning, execution and monitoring of the works under MGNREGS. A paradigm shift from wage to self-employment as a strategy for livelihood could be put in place to ensure long term benefits to the people. As the current works under MGNREGS is not adequate to ensure restoration and regeneration of the natural resource base of the area, it is recommended that they be taken up through an area saturation approach. By identifying appropriate clusters for integrated natural resource management, the area saturation approach has the potential to strengthen ecosystems in the area. Further, a convergence could be planned between NRM and Livelihood Development Plans of the state. The cluster level plans could incorporate livelihood planning for the landless households keeping in view the entrepreneurship opportunities and indigenous knowledge of the local communities. Similarly, community engagement could be enhanced by engaging producer companies for procurement of the materials for any works under MGNREGS. For MGNREGS to be effective, there is a need to ensure availability of work from October through February to dissuade people against distress migration.

# CHAPTER I

## Introduction and Rationale

Impacts of climate change on population mobility has spurred widespread debate, research and predictions on future implications of climate-induced migration, sometimes described as ‘climatic turn’ (Naverla 2007 cited in Panda 2017) in explanation of migration. However, in the context of climate change, despite many numerical predictions on the number of people who might be displaced or have already been displaced (Myers 2002, Stern 2006), the empirical basis of such research remains weak. Important constraints arise due to lack of data on migration and nature of complexity mostly in developing countries, where people are highly vulnerable to the impacts of climate change. In India, the primary agrarian states like Odisha, often suffer the maximum brunt from climate change induced calamities (Tanner et al. 2007, Panda 2017, Ghosh and Majumdar 2006, 2007) resulting in large scale migration.

Odisha, is an agrarian state. A survey showed that agriculture provided employment directly or indirectly to 62 % of the total workforce in 2011 (Odisha Economic Survey 2017–2018). While many studies have attempted to show the impact of environmental hazards on few areas (Velan and Mohanty, 2015 and CSIR, 2016) there is a need to study the impact of climate change especially on migration. An analysis on variation in monthly, seasonal and annual rainfall in the state of Odisha, shows a decreasing trend in monthly rainfall in the months of June, July, and September, and an increasing trend in August, more predominant in the last 10 years. Further, rainfall analysis also showed an increased number of dry years compared to wet years after 1950 (Patra et al. 2012 in Panda, 2017). Similarly, analysis by Tanner et al. (2007) shows that after 1961, the rainfall patterns were below the normal (CES data (GoO) indicates that normal rainfall is 1431mm per annum), suggesting a drier spell in Odisha. Other studies also indicate that the state is experiencing decreasing rainfall in some parts of the year (Mahapatra and Mohanty 2006 and Patra et al. 2012 in Panda 2017). Likely impacts of climate change in Odisha shows the possibility of an increase in hydrologic extremes (Ghosh and Majumdar 2006) including increasing probability of severe and extreme droughts (Ghosh and Majumdar 2007).

## **Research Background**

As part of the Infrastructure for Climate Resilient Growth (ICRG) in India, a 43-month Technical Assistance (TA) Programme, supported by UK's Department for International Development (DFID), is in progress, to improve the design and implementation of works under MGNREGS, safeguarding previous investments. The focus of the programme is to impact the durability of assets enshrined in MGNREG Act by building climate resilience perspectives so as to enhance livelihood security of the rural poor, particularly of those dependent on rain-fed agriculture. The ICRG programme is being implemented in 103 Blocks of the states of Bihar, Odisha and Chhattisgarh in India selected amongst the 2500 Blocks which are under special focus of MGNREGS by the Government of India. In Odisha, the programme covers 35 blocks in 5 districts namely Bolangir, Kalahandi, Nuapada, Keonjhar and Mayurbhanj. Since rural areas are considered the most vulnerable to impacts of climate change, such as health and livelihoods, production and productivity and, employment, it has led to high levels of migration as a coping mechanism particularly for the poor who have very low adaptive capabilities.

Western Odisha has long been prone to distress migration due to the large numbers of landless and marginal farmers who are faced with extreme levels of poverty, unequal land distribution and degradation of natural resources. A combination of erratic monsoons and unstable livelihoods has made farmers of the region adopt migration as a survival strategy. People from this region prefer to migrate to neighbouring Telangana and Andhra Pradesh to work in brick kilns, for which they possess traditional skills; all this for a meagre advance to tide over the lean period of agriculture income. Since there are few studies that explore the impact of climate change on migration, this study is extremely timely and critical.

### **Objectives of the Study:**

1. To study the extent to which climate change has induced distress migration in selected districts of western Odisha
2. To study the impact of NRM works already taken up under MGNREGS in addressing distress migration in the area

3. To assess the extent of works taken up under MGNREGS and/or convergence have created avenues of livelihood in the villages for migrant households
4. To suggest recommendations of how MGNREGS and other schemes could address the issue of environmental induced migration and build resilience of migrant households

## CHAPTER II

### Literature Review

#### Climate Change

Reports by IPCC (2007) predict that by 2099 the world is expected to be hotter between 1.8°C and 4°C than it is now (Ammassari, 2005). Further, the proportion of dry areas is expected to increase and the proportion of land in constant drought is expected to increase from 2 per cent to 10 per cent by 2050 (Farrant, et. al, 2006). Meanwhile, the proportion of land suffering extreme drought is predicted to increase from 1 per cent at present to 30 per cent by the end of the 21st century (Carling, 2006). Rainfall patterns is expected to become more intense, leading to the washing away of top-soil and causing floods. Further, such changes are also expected to result in increased frequency of extreme weather events such as droughts, storms and floods (Murphy 2006). For example, it is estimated that the South Asian monsoon will become stronger with up to 20 per cent more rain falling on eastern India and Bangladesh by 2050 (Bruyn and Wets, 2006). On the contrary, less rain is expected at low to mid-latitudes; by 2050 sub-Saharan Africa is predicted to have up to 10 per cent less annual rainfall in its interior (Ionescu, 2006). Such data give us an idea of the change expected in the earth's climate in the near future. Changes in the climate system in the different spheres occur both naturally and due to human activity. To be able to understand the phenomenon of climate change one must first understand climate and its change.

The earth's climate has been changing since the time it was first formed. Strictly speaking the climate system not only refers to the atmosphere, but also the cryosphere (the ice and snow bound parts), the lithosphere (the Earth's crust), the biosphere and the ocean. These spheres interact with each other over a variety of temporal and spatial scales. Therefore, climate is a statistical summary of the atmosphere over a prolonged period of time. Climate change is the difference in statistical properties of the atmosphere from one long period of time to another. The changes in the climate is mostly seen in two forms: Climate processes, which are slow onset changes for example rise in the sea-level, salinization of agricultural land, desertification, increasing water scarcity resulting in crop failure therefore leading to food insecurity. Sea level rise makes certain coastal

areas and small island states uninhabitable. All these make certain areas unfavorable for livelihood hence forcing is population to move out to other areas. For example, where farmers depend solely rainwater for irrigation for their land, if year after year, there is dry spell, they will simply have to move permanently to areas with alternative forms of irrigation (Brown, 2008). On a national level, sea level rise could have serious implications for food security and economic growth. This is a particular concern in countries that have a large part of their industrial capacity under the “one metre” zone. Bangladesh’s Gangetic plain and the Nile Delta in Egypt, which are breadbaskets for both countries, are two such examples. Egypt’s Nile Delta is one of the most densely populated areas of the world and is extremely vulnerable to sea level rise. A rise of just 1 metre would displace at least 6 million people and flood 4,500 km<sup>2</sup> of farmland (ibid.).

Climate events, on the other hand, are sudden and dramatic hazards such as monsoon floods, glacial lake outburst floods, storms, hurricanes and typhoons. These force people off their land much more quickly and dramatically.

However, climate processes and climate event are closely connected. For example, according to the IPCC (2007) report, the global warming is now likely to reach 1.5 degree between 2030 and 2052 if it continues to rise at the current rate, the Special Report on Global Warming of 1.5°C (2018) has warned. It projects that the impacts at 2°C are “catastrophic” for the poor and developing nations like India. The impacts will include intensified droughts and water stress, heatwaves, habitat degradation, and reduced crop yields.

“The report shows that if the global temperature increase goes up to 2 degree C instead of 1.5 degree C, the largest impact on economic growth will be (reduced GDP) on countries like India, and those in southeast Asia and Africa,” Dr Koll said while speaking to India Science Wire (The Hindu Business Line, 2019). Extreme heatwaves too could be the new normal in India. “One of the most robust impacts is going to be related to temperature, which to a certain extent, we have started witnessing in India,” pointed out Dr Vimal Mishra of Indian Institute of Technology Gandhinagar (ibid.) The other most noticeable impacts are likely to revolve around the projected rise in mean and extreme temperature in India, which certainly will affect agriculture, water resources, energy, and public health sectors,” Dr Mishra explained while speaking to India Science Wire (NDTV, 2018).



Climate change has become a matter of great concern for Odisha, which has a large coast line. Odisha's seasons have all but vanished, its trees have altered their flowering time, and the farmers have changed their farming practices. Not only this, of the six seasons prevalent there seems only two summer and rain that have their effects on Lands of the state. Autumn, spring and winters have slowly vanished from the memory of the people. While summers have become longer, winters have become warmer and rains have shortened from above 120 to 90 days while becoming erratic beyond point (Jena, 2017). The normal rainfall of the State is 1451.2 mm. and the actual rainfall received varies across districts. Even though the quantum of rainfall is quite high, its distribution during the monsoon period is highly uneven and erratic. Floods, drought and cyclones occur often with varying intensities (Panda 2016).

### ***Climate events and their impact on people's lives***

People and society are affected by climate change; and their lives and livelihoods are impacted by manifestations of the climate system, such as a lack of rain or a heat wave (IOM, 2008). Moreover, society's primary interactions with climate tend to occur via third parties, climate sensitive activities, such as tourism or climate sensitive commodities such as crop yields. The state of these activities and commodities not only reflect the state of atmospheric variables but any number of socio-economic, political and cultural factors which are often totally unrelated to atmospheric conditions. It is within this arena of abstractness and nonlinearity that the concept of climate change induced migration sits.

In addressing the potential impact of climate change on migration, Brown (2008) argues that it is important to make a distinction between climate and non-climate drivers. Climate drivers include slow onset, gradual processes such as sea level change and climate events which are sudden and dramatic hazards such as monsoon floods, glacial lake outburst floods, storms, hurricanes and typhoons. Brown (2008) explains however, that non-climate drivers are equally important.

“A natural hazard (like an approaching storm) only becomes a ‘natural disaster’ if a community is vulnerable to its impacts. A tropical typhoon, for example, becomes a disaster if there is no early warning system, the

houses are poorly built and people are unaware of what to do in the event of a storm” (p. 11).

Hence, poverty becomes a critical factor since poorer communities are much less likely to have the resources and capacity to have adoptive mechanisms in place. As Brown (2008) puts forth, population, poverty and governance are crucial mediating factors which can influence whether or not climate change produces migration and if so what type of migration.

There is a need to differentiate between climate change and climate variability as mentioned by scientists. While climate change is a shift in average rainfall and temperature in the long term, climate variability is an increase in the variance of these factors also resulting in extreme weather events (Easterling et.al., 2000; Rowhani et.al., 2011 in Panda 2017). Hence climate change may have two type of impacts on migration – those arising (a) due to frequent extreme events and (b) due to change in variance of rainfall and temperature along with other climatic factors (ibid). The impact of climate change on the poor and marginalised will be adverse compared to others in terms of loss of lives and livelihoods, loss of crop yields, incomes, assets and employment. Ninan (2019) studied the rural poverty trends in India and found that although India witnessed a significant decline during the post-reform period beginning 1991, it may get reversed and may increase due to likely adverse impacts of climate change on Indian agriculture and other drivers of poverty. Needless to say, based on the nature of climatic events, the types of response communities have toward migration will be quite different as will the types of policy response needed to prepare for, and cope with them.

Therefore, considering the literature reviewed and its relevance in the study area, two types of indicators have been used to assess climate change:

- a. Indicators pertaining to climate processes, like variation in rainfall and temperature patterns over a period of at least 20 years and their impact on agriculture
- b. Indicators pertaining to climate events, like droughts and their frequency in the study area, considering that the study area is more prone to droughts.

## **Migration**

The idea of migration and climate change and their relationship with development came to the forefront of global dialogue following the release of the Report on the Intergovernmental Panel on Climate Change (IPCC, 2007) and the holding of the first Global Forum on Migration and Development in the same year. The IPCC had estimated in 1990 that the greatest single impact of climate change could be human migration with 250 million by 2050 displaced due to shoreline erosion, coastal flooding and agriculture disruption (IOM 2008). There is a need to understand the complex relationship between climate change and migration from the perspectives of social, economic and environmental factors. This would help in designing interventions to improving and sustaining livelihood options for the local communities. Much of the literature on climate induced migration flows from the ‘Environmental/ Ecological Refugees’ literature (Gadgil and Guha 1995, Myers 1997, Piguet 2010, Gemenne 2011) where the relationship between environment related degradation as linked with migration has been clearly established in developing countries including India.

The conventional literature on migration, however, has been preoccupied with ‘development-induced’ economic migration resulting in unequal development trajectories (Deshingkar and Start, 2003). This supposedly led to one-way population movements from less endowed areas to prosperous areas through the ‘push’ created by poverty and a lack of work and the ‘pull’ created by better wages in the destination (Lee, 1966). Theories of urban expansion aligned with this analysis of migration.

Ideas of seasonal and circular labour migration were first articulated in the 1970s (Nelson, 1976; Rao, 1994 in Deshingkar and Start, 2003) and defined as ‘characteristically short term, repetitive or cyclical in nature, and adjusted to the annual agricultural cycle’. This view challenged the linear model of migration as well as theories of urban expansion. There are different definitions and explanations for the motivation that compels people to migrate. At one extreme there is ‘involuntary’ migration. This denotes extreme economic and often social hardships, and is undertaken mostly by landless or land-poor, unskilled and illiterate poor labourers. In such instances, people sometimes do not have any choice of the place to migrate or type of work that they can possibly undertake. Migration for survival is well documented in Andhra Pradesh (Murthy, 1991;

Reddy 1990; Rao, 1994). Nearly all the studies have identified the main drivers of migration to be dryland agriculture created by drought, crop failure and poor terms of trade. In Odisha, apart from drought, recurring floods is also one of the main triggers of out-migration. Local communities are unable to engage in agriculture due to crop failure and are therefore compelled to migrate out for income earning opportunities. Migration is integral to people's coping, survival and livelihood strategies and not just a response to emergencies (Deshingkar and Start, 2003). Coping strategy is generally understood as an adaptation to a challenging situation. Alex Randall (2018) of the Climate Change and Migration Coalition is of the view that 'Migration is increasingly becoming a way that some communities adapt to climate change impacts. Regardless of any policy, people are using migration as a coping strategy'. For example in Odisha, what is typically found is that migration from villages take place around 7 months in a year which can be characterised as a coping strategy to meet the livelihood needs of local communities. Migration as a coping strategy is seen among the small and marginal households in the Western Odisha districts of Nuapada and Bolangir (Panda, 2017). Climate induced migration is increasing by the day in many parts of India. Using Census data, a study was done by Dallmann and Millock (2017) on inter-state migration due to climate variability. Environmental Vulnerability Index was used with a focus on droughts and excessive precipitation (floods). Four states in India – Uttar Pradesh, Bihar, Madhya Pradesh and Maharashtra showed highest rates of out-migration. All of them experienced 12 months of excess precipitation in the 5 years preceding the 1991 census, and no periods of excess precipitation in the 5 years preceding the 2001 census.

Rao (2001) refers to three kinds of migration in his study of Ananthapur and Rayadurga districts in Andhra Pradesh. Type 1 is migration for coping and survival. Type 2 is defined as migration for additional work/ income. It takes place when the work in the village is over, normally after harvesting all crops. Type 3 is migration for better remuneration or a better work environment or opportunity to use skills or acquire new skills. He observes that there is a continuous transition between the different types.

Concluding from the above literature review on climate change and migration, for the purpose of the study, any household where at least one member has

migrated can be defined as a migrant household. As the study focuses on distress migration, it can be understood as migration for survival due to economic and social hardships undertaken mostly by the landless or land-poor, unskilled and illiterate poor labourers, particularly women who often do not have any choice of the place or type of work that they can undertake.

### **MGNREGS – National and Local Scenario**

The National Rural Employment Guarantee Scheme (NREGS) which was renamed as 'Mahatma Gandhi Rural Employment Guarantee Scheme (MGNREGS) was enacted in 2005 to provide minimum 100 days guaranteed wage employment in every financial year to the rural households who want to do unskilled manual work that includes creation of productive assets in the village such as wells, tanks, ponds, roads, etc. (Jacob and Varghese, 2006 and Datar, 2007). MGNREGS was introduced in 200 districts in 2005–06 and later extended to the entire country covering 619 districts in 2009–10. MGNREGS is a rights-based programme, where workers can demand employment, get minimum wages, have gender parity of wages, and payment of wages within 15 days, as well as the provision of basic worksite facilities, among others. The government is legally bound to provide employment within 15 days of the application for work by a job seeker; in case of delay or failure to provide employment to the job seeker, there is provision of unemployment allowance. That a person seeking such employment is to be registered with the Gram Panchayat (village administration council); after due verification, the household is to be provided a job card.

The MGNREGS aims to achieve the twin objectives of providing rural employment and undertaking rural development simultaneously. The objective of the Act is to create durable assets and strengthen the livelihood resource base of the rural poor. The unique features of the Act are transparency, accountability and provision for social audits. According to the Ministry of Rural Development (MoRD, 2012) this programme was to regenerate the natural resource base and provide sustained stimulation to the agrarian economy, thus, boosting rural wages and restricting distress migration. MGNREGS is unique from other schemes because it gives the rural poor the right to demand a job or unemployment allowance and has a greater potential to raise the standard of living of the rural poor (MoRD, 2012).

For the operation of a scheme under MGNREGA, the Government of India meets the cost towards payment of statutory wages, three-fourths of the material cost and some percentage of administrative cost. The Act has a provision of payment of unemployment allowance also to a job-seeker who is not provided employment within 15 days of his/her request date. However, this unemployment allowance is to be met by the state governments along with one-fourth of material cost and the remaining administrative cost.

The works under MGNREGA must be targeted towards a set of stipulated rural development activities like water and soil conservation, afforestation, flood control, developing and maintaining community assets like community land, watershed development, road connectivity, construction and repair of embankments, digging of new tanks/ ponds, construction of percolation tanks, check dams, etc. (GoI, 2008).

In 2018-19, the scheme has generated 230 crore person-days of work with 4.08 crore assets created and 4.93 crore households benefiting. 34.61 crore DBT transactions have been performed ([www.nrega.nic.in](http://www.nrega.nic.in)). The best performing states are Andhra Pradesh, Tamil Nadu and West Bengal. Tamil Nadu has been able to register the largest percentage of active workers (73.6) amongst the mainstream states with the largest number (53.79 lakh) of households benefiting. Andhra Pradesh has the largest number of assets created (59.18 lakhs) and the highest DBT transfers recorded (4.73 crores). West Bengal has the generated the largest number of person-days of work (32.68 crores) (**Annexure 2**).

In Odisha, MGNREGS (2018-19) generated about 6.73 crore person-days of employment and Rs.1.13 crores direct benefit transactions (DBT) have been transacted. Further, a total of 13.41 lakh assets have been created and 19.25 lakh households have benefited from MGNREGS in the state in 2018-19 ([www.nrega.nic.in](http://www.nrega.nic.in)). Further the data indicates that while the average number of person-days generated has marginally increased in the state over the years (894.46 lakhs in 2015-16 to 922.11 lakhs in 2017-18), the average days of employment provided per household (44.78 in 2015-16 to 39.98 in 2017-18) and the average wage rate has been on the decline (188.02 in 2015-16 to 173.91 in 2017-18). The total number of households who have completed 100 days of wage employment has also declined. The same trend is seen in the four project districts (**Annexure 3**).

## *Performance*

MGNREGS achievements have varied across the different states, largely depending on the commitment of the local leadership at the village council level, the level of institutional preparedness and governance capacities (Reddy et al., 2010). Broadly, Carswell and de Neve (2014) state that the scheme is benefitting the poorest households – and Dalits and women in particular - especially in terms of providing a safety net and as a tool for poverty alleviation. More specifically,

- NREGS has created jobs when there were few or no alternative work opportunities (Johnson, 2009)
- Better wages for labourers in rural areas in view of payment of prescribed wages (Jandu 2010, Banerjee 2011, Carswell and de Neve 2014). Using monthly wage data from the period 2000-2011 for a panel of 249 districts across 19 Indian states, Berg et al (2012) found that on average MGNREGS boosts the real daily agricultural wage rates by 5.3 per cent. This in turn triggered enhanced wage negotiation capacity of workers in the private sector (Menon 2008) and reduced their dependency on high caste employers (Carswell and de Neve 2014).
- Parity of wages between men and women is another important outcome. This in turn enhanced the ability of women to negotiate for parity of wages with men (Azam 2011). In some instances, the increase in agricultural wages has led to doubling of income for women in agriculture (Jeyarajan, 2011; Dasgupta and Sudarshan, 2011)
- Higher participation of socially marginalized communities is also reflected in field-based studies (Mehrotra, 2008; Jeyarajan, 2011; Azam, 2011).
- The improvement in wages has also led to an increase in consumption of both food and non-food consumables in some states like Andhra Pradesh (Ravi and Engler, 2009; Liu and Deininger, 2010)
- Availability of works within the vicinity of their habitation, especially in the lean agriculture season, has indeed made a positive impact on reducing the migration. Many a research studies confirmed the fact that

MGNREGA is successful in largely reducing the distress migration (Awasthi et al, 2011, Parida 2016).

- The nature of works taken up under the Act - which mostly focus on strengthening natural resources like water and land - are indeed strengthening right physical atmosphere for agriculture operations, either tiny or large land-holdings. Several research studies estimated better crop-output in this regard.
- Steady rise in household savings (Awasthi et al, 2011)
- Increased investment on human resources among laborers' households etc. NREGS participants are able to reinvest some of the earnings into farms, increase agricultural productivity and reduce their underemployment, especially among poor households (Saraswat, 2011, Rani & Belser 2012)

However, some studies have highlighted the problems with MGNREGS

- Reddy et al., (2011) have argued that the low wages paid under NREGS could be due to the improper methods of measurement of productivity; lack of information to the workers about the wages rates for different kinds of work; lack of bargaining power of the workers; and fudging of muster rolls
- A number of evaluations have pointed out that in many states there have been delays in the payment of wages (ISWSD, 2007; Drèze and Khera, 2009; Dey and Bedi, 2010)
- In Kerala, NREGS work exacerbated agriculture labour shortages, and this had an added effect on pushing up wages in the agricultural sector, moving slowly towards the NREGS wage rate (Nair, Sreedharan and Anoopkumar, 2009).
- Further several studies have also suggested towards an adverse effect of MGNREGS on agriculture productivity:
  - Harish et al (2011) found that MGNREGS programme often posed the problem of labour scarcity for some of the agricultural operations linked to market wage rates. As a consequence, farmers had brought down their acreage under different crops,



leaving the land fallow.

- Channaveer et al (2011) in their study in rural Karnataka found that the cost of cultivation was higher due to the higher cost of labour. Further, they found that the labour productivity for both male and female workers were observed to be lower for all the operations. At the same time the wage rates were higher for both male and female workers. From these they concluded that MGNREGS works should not coincide with peak agricultural work and that labour under MGNREGS should be engaged more in the creation of productive assets.
- Reddy et al (2014) found that the states which effectively integrated MGNREGS works with local planning gained much in terms of employment generation and asset creation leading to increased agricultural potential.

Irrespective of the criticism on MGNREGS, it has been able to generate massive employment in the country especially for the socially disadvantaged sections of the country.

### ***MGNREGA and Climate Induced Distress Migration***

Das (2015) in his study of MGNREGS in rural West Bengal found no significant impact of household participation in the scheme on migration decision. However, he found that the extent of participation in terms of number of days of work and earnings has a significant negative impact on short-term migration but not on longer duration ones.

Thorat et al (2011) based on their study of determinants of rural-urban migration in the Konkan region of Maharashtra observed that migration has a positive impact on income, expenditure and net savings of migrant sample households. Analysis indicated that one unit increase in the age of household-head increases the probability of migration of family members by 0.81 per cent. The probability of migration of family member decreases by 0.003 per cent with one unit increase in before-migration income of a household. The odds ratio for family-size indicated that with one unit increase in family-size, the probability of migration of family members increases by 8.7 per cent. There is a negative relationship between migration of family members and income from agriculture.

As off-farm income of a household increases, the probability of migration of its family member decreases. The odds ratio for off-farm income implies that with one unit increase in off-farm income of a household, the probability of migration decreases by 0.018 per cent.

### **Climate Change, Migration and the Role of MGNREGS**

The literature review establishes a strong link between climate change and migration (IPCC, 2007). Migration may be in form of response to immediate climate events like droughts and floods (IOM, 2008) as well as a coping strategy adopted by households to deal with long term impact of climate processes like change in rainfall pattern, temperatures, etc. which has indirect impact on people's livelihoods. This is evident through processes like gradual desertification of land, degradation of soil quality, impact on climate sensitive commodities like crop yield etc. (Deshingkar and Start, 2003, Brown 2008). However, an understating of the relationship between Climate Change and Migration is incomplete without considering the back drop of other factors which may be social, economic and political. In the current scenario, MGNREGS plays a critical role since it aims at providing alternative livelihood options through wage employment during lean agricultural season, while creating livelihood assets mostly pertaining to natural resources (Awasthi et al, 2011, Parida 2016). Therefore, a framework is necessary to develop a complete understanding on Climate Change in the study area, its relationship with migration in the same area and the role of MGNREGS in arresting distress migration as well as creating climate resilient assets which can impact the ecology of the area both the short and long term.

## CHAPTER III

### Framework and Approach

Internal migration has already been recognized as a common response to environmental stresses and it has broadly been established that internal migration often intensifies following major droughts or famines (Findley, 1994; Perch-Nielsen, 2004). Therefore, the basic assumption of the study at hand is that migration is a response to climate stimuli.

In the context of climate change, despite many numerical predictions on the number of people who might be displaced or have already been displaced (Stern 2007), the empirical basis of such research remains weak. Important constraints arise due to lack of data on migration and nature of complexity mostly in developing countries, where people are highly vulnerable to the impacts of climate change.

However, the available literature around climate change and migration have revolved around human behaviour to deal with stressors. Considering climate change as one of the stressor and migration as the responses or coping mechanism two major approaches have been largely adopted to study – The sustainable livelihood approach (Serrat, 2017) and The New Economics of Labour Migration (NELM) (Stark and Bloom, 1985). While the Sustainable Development Approach focuses on the asset vulnerability causing people to migrate, NELM deals with questions like where do people migrate to and what influences their decisions.

A holistic understanding of the interlinkages between climate change and migration requires to consider both the vulnerability context of the migrants (including asset vulnerability) as well as the factors that influence their decision to migrate and its destination. For the purpose of this study both the approaches have been integrated, with special focus on the role of MGNREGA since it occupies a critical position in the objectives of the study. Therefore, the study focuses on factors, which may either push or pull families into migration and the role of MGNREGA in the interlinkage between Climate Change induced Distress Migration.

The literature review was followed by consultations with the Department of Panchayati Raj and Drinking Water, GoO, ICRG team and Migration and Climate Change Experts after which the following framework and approach has been finalized.

The key factors of climate change induced migration can be segregated into:

- A. Environmental Factors and
- B. Non-Environmental factors.

A. Environmental Factors are ecological in nature and they can be further divided into two categories: (i) climate related factors and (ii) non-climate related factors

- i. Climate related factors are those which can be measured through climatic indicators like rainfall, temperature, etc.

Table 3.1 gives an idea about the climate related factors comprising patterns of rainfall, temperature and humidity, where the pattern would be captured through range, maximum and mean values.

**Table 3.1: Climate Related Factors**

Patterns of rainfall	Patterns of temperature	Patterns of Humidity
Inadequate rainfall – leading to drought	Extreme temperature – leading to agricultural productivity decline, scarcity of natural resources, adverse health implications, etc.	High
Untimely rainfall – leading to crop failure	Erratic seasonal temperature and duration	Low
Excessive rainfall – leading to flood		Erratic

For the purpose of the study, the micro-climate (district and block level) change has been investigated which comprise the difference in the patterns of temperature, rainfall and humidity. These three are the more relevant atmospheric properties in the context of Western Odisha, where this study is based.

ii. Non-Climate related factors are those that are largely influenced by the climatic indicators, like water based factors, soil based factors, etc. as shown in table 3.2.

**Table 3.2: Non-Climate related factors**

Land related	Water related	Forest related	Bio-diversity
Changes in soil health – leading to change in productivity	Change in rain fed irrigation pattern (availability, quality)	Change in forest coverage	Change in flora
Changes in land holding patterns	Change in surface water pattern (availability, accessibility, quality)	Changes in forest produce – purpose, availability, accessibility, type	Change in fauna
Change in land use patterns	Change in ground water pattern (availability, accessibility, quality)	Change in price	

Both the Climate and Non-Climate related factors are combined together as environmental factors. Table 3.3 provides a summary of the environmental factors affecting migration.

**Table 3.3: Environmental factors affecting migration**

Environmental Factors	
<b>Climate related factors</b> <b>a. Patterns of rainfall</b> <b>b. Patterns of temperature</b> <b>c. Patterns of wind</b> <b>d. Patterns of humidity</b>	<b>Non-Climate related factors</b> a. Land based b. Water based c. Forest Based d. Bio-diversity based

**B. Non-Environmental Factors**

Factors which are not directly linked to climatic indicators but have a clear influence on migration are defined as Non-Environmental factors in the context of the study. The Table 3.4 lists the broad categories of non-environmental factors.

**Table 3.4: Non-Environmental factors affecting migration**

Non - Environmental Factors

<p style="text-align: center;">1. Economic</p> <ul style="list-style-type: none"> <li>• <b>Inadequate agriculture inputs and their costs</b></li> <li>• <b>Inadequate irrigation facilities and their costs</b></li> </ul>	<p style="text-align: center;">2. Socio-cultural</p> <ul style="list-style-type: none"> <li>• Lack of informal social institution for credit support like active SHGs, Cash and kind support from family members, relatives, friends, community.</li> </ul>
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- **Non-availability of livelihood opportunities during lean seasons**
- **Non-availability/ inadequate (timeliness, remuneration) availability of Agri Labor**
- **Non-availability/ inadequate availability of Wage Labor**
- **Difficulty in access to credit**
- **Lack of asset base to help during emergencies**
- **Reliability of the livelihood source**

- **Burden of migration by virtue of gender**
- **Strong migration channels**

### 3. Political

- **Inadequate support from Govt. programmes during time of need (timeliness, adequacy, accessibility, terms of support)**

### 4. Technological

- **Non-availability of appropriate technology for livelihood support to cope with climate stressors**

It is important to note that the environmental and non-environmental factors are not exclusive of each other. Both the above have a strong influence on each other. For example, the pattern of rainfall determines agricultural produce, which in turn indicates the economic condition of the household, which may or may not induce migration. Similarly, in spite of inadequate rain, drought resistant technology for agriculture, like drought resistant crops will also have a strong influence on decisions of families around migration.

Therefore, the framework for the study comprises the environmental factors, non-environmental factors and policies, programmes and institutions, especially MGNREGS with its convergence with other schemes.

### **C. MGNREGS and its convergence with other schemes**

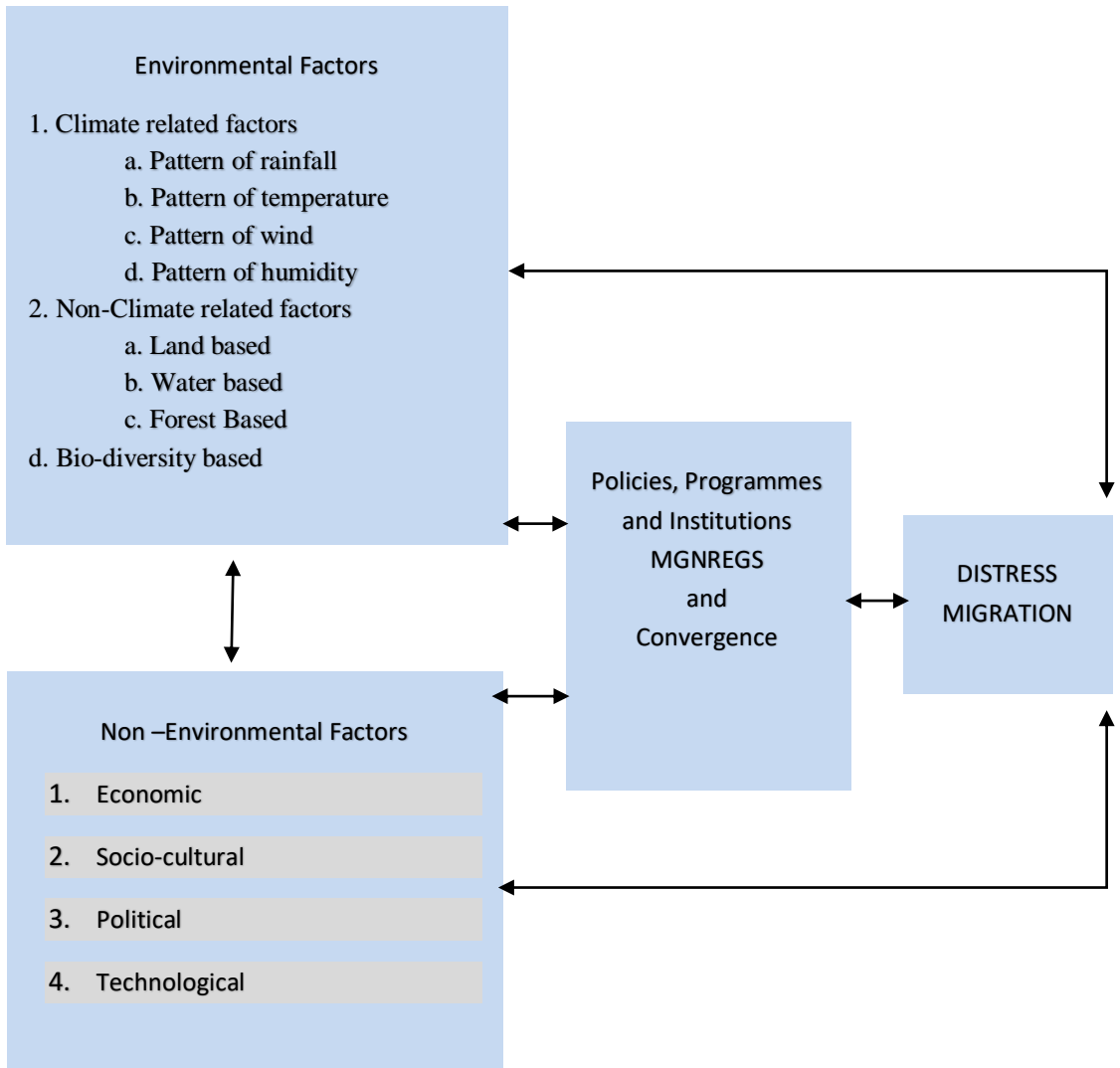
The political factors under non-environment factors include policies and schemes responsible for arresting distress migration. However, this research aims at studying the management of distress migration and enhancement of resilience through climate appropriate interventions under MGNREGS. This is assumed to be the third factor in the framework. For the purpose of the study, three indicators have been selected corresponding to MGNREGS to measure its effectiveness in the selected study areas.

- i) Income ensured (including person-days employment generated, job cards issued, assets created, etc.) and
- ii) Drought related works undertaken through MGNREGS in the districts (including expenditure on NRM, agriculture, etc.)
- iii) MGNREGS and its convergence with other schemes at creating assets and implementing interventions to reduce vulnerability of the households

MGNREGS has clear interlinkages with both environmental and non-environmental factors as well as distress migration. Furthermore, each on their own also have a clear interlinkage with distress migration. The framework of the study is presented in Figure 3.1



**Figure 3.1: Framework of the research**



## CHAPTER IV

### Methodology

#### Sampling Methods for the Study Area and Determination of Sample Size

In order to choose different blocks of four focused districts-Bolangir, Kalahandi, Baragarh and Nuapada, the study has adopted stratified random sampling. The base of stratification is the prevalence of distress migration across different blocks of four districts. The study has collected secondary data on prevalence of distress migration from different stakeholders of both government and non-government organisations. Based on the discussions, in the first stage, the study has selected different blocks where distress migration is more. Further, the discussions also recommended to take up at least 2 gram panchayats from each block. Finally two gram panchayats were randomly selected by using lottery method.

#### Sample Size

Since the population is unknown, the sample size is determined by computing the minimum sample size required for accuracy in estimating proportions taking 95 per cent confidence level(1.96), percentage picking a choice or response (50% = 0.5) and the confidence interval (0.5 = +/-5). The formula is

$$n = Z^2 p q / C^2$$

n = sample size

Where, Z = Standard normal deviation set at 95 per cent confidence level or the value on the Z table at 95% confidence level =1.96

p = Maximum variability of the population at 50% i.e. (0.5)

q = 1-p = 0.5

C = Confidence interval

$$n = (1.96)^2 \times (0.5)(0.5) / 0.05^2$$

$$n = 3.8416 \times 0.25 / 0.0025$$

n = 384.16

This implies that a sample of 384.16 households will be representative enough for collecting data. However, in order to capture the diversity of sample households; we have taken more than 385 households. The study also attempted to avoid incomplete and missing responses from some of the households. Hence, the study has taken 600 households from different villages of four study districts.

## **Methodology**

The study adopted both quantitative and qualitative approaches.

Tools for data collection included:

### *Participatory Rural Appraisal (PRA) tools*

- **Social Map** – The focus here is on the depiction of habitation patterns and social categories in the village, identification of the migrant HH through social categorization (caste, class, etc.). The map is made by local people is not drawn to scale. It reflects their perceptions of the social dimensions of caste, class, migration, etc.
- **Wealth Ranking** – Identification of economic condition through income-expenditure, asset base, etc. Through the wealth ranking exercise, the poorest of poor from amongst the migrants households were selected for the study with the assumption that they are more likely to migrate under distress.
- **Seasonal Map** – For livelihood, climatic conditions (categorizing the types of climate based events like droughts, floods etc.) and migration. The objective was to study if there is an overlap between the seasonality of climate events, MGNREGA works and migration.
- **Time-Trend** – Time trend is commonly used to explore the temporal dimensions from historical perspective. Time trend captures the chronology of events as recalled by local people, in this case relating to temperature and rainfall pattern as well as migration trend.

### *Focus Group Discussions (FGDs)*

FGDs were conducted with migrant households as well as Women Self Help Groups (SHGs).

FGDs with migrant households – The objective was to draw qualitative information from the migrant households about the impact of climate change, its influence on their decisions around migration, the role of MGNREGA, how it helps and how it can be improved. This was done based on the knowledge gained through literature review around households decisions relating to migration. It was ensured at least one member from the sample migrant households participated in the FGDs.

FGDs with Women SHGs – The objective was to draw qualitative information around the role of institutions in helping households cope with climate stressors and their decision to migrate. Further, it also aimed at assessing the extent of convergence of MGNREGS with social institutions and the impact of the scheme on women.

To meet the first objective, the study relied on descriptive statistics of different indicators. The two types of indicators to assess climate change based on literature review were:

- c. Indicators pertaining to climate processes, like variation in rainfall and temperature patterns over a period of at least 20 years and their impact on agriculture
- d. Indicators pertaining to climate events, like droughts and their frequency in the study area, considering that the study area is more prone to droughts.

Further, to understand the extent to which climate change has induced distress migration, a chi square test was conducted to assess the association between climate change indicators and distress migration. This was followed by Cramer's V test which measures the strength of association between climate change and distress migration. The quantitative analysis was supplemented by qualitative information obtained from PRA and FGDs in the study areas.

To accomplish the second objective, both quantitative and qualitative information was used. First, different NRM works undertaken in the study area were identified after a thorough review of existing literature. Then, the frequency of those indicators was calculated to understand the extent of relevance of specific NRM works. Later, an association was established between NRM works and their impact on migration of the households using the chi square test.

Similarly, for the third objective, both quantitative and qualitative data was used. Regarding convergence, special focus was given in FGDs, conducted at study area. Information on convergence was also derived through interviews with different government and non-government officials. For this interviews were conducted with officials at the block and gram panchayat offices, either in person, or through telecommunication, if the official was not available.

**Block details for data collection:**

The study was conducted in the western Odisha districts of Bargarh, Bolangir, Kalahandi and Nuapada.

**Table 4.1: Sample size**

Districts	Blocks (Number)	GPs (Number)	Household (Number)
<b>Nuapada</b>	3	3 X 2 = 6	HHs/GP = 25 HHs/Block = 25 X 2 (GPs) = 50 HHs/District = 50 x 3 (Blocks) = 150
<b>Bolangir</b>	3	3 X 2 = 6	HHs/GP = 25 HHs/Block = 25 X 2 (GPs) = 50 HHs/District = 50 x 3 (Blocks) = 150
<b>Kalahandi</b>	3	3 X 2 = 6	HHs/GP = 25 HHs/Block = 25 X 2 (GPs) = 50 HHs/District = 50 x 3 (Blocks) = 150

<b>Bargarh</b>	3	$3 \times 2 = 6$	HHs/GP = 25 HHs/Block = $25 \times 2$ (GPs) = 50 HHs/District = $50 \times 3$ (Blocks) = 150
<b>Total</b>	12	24	600

The villages, gram panchayats and blocks covered in data collection are presented in Table 4.2.

**Table 4.2: Details of Villages, GPs, Blocks and Districts for data collection**

Sl. No.	District	Block Focused by ICRG	Blocks for data collection	GPs for data collection	Villages for data collection
<b>1</b>	Nuapada	Khariar, Boden, Sinapalli, Nuapada and Komna	Sinapalli	Kusumjore	Branmaniguda, Kotamal
				Jharbandh	Nagjhar, Kandamunda
			Nuapada	Khairani	Pipalchenddi, Khairani
				Bisora	Chingrasara, Jhitki
			Khariar	Ranimunda	Kotamal, Ranimunda
				Kirkita	Dharuapada, Kirkita
<b>2</b>	Bolangir	Bangomunda, Belpara,	Muribahal	Ichhapara	Saibindha, Jharkhamar,

		Khaprakhol, Muribahal, Titlagarh and Turekela		Badsaimara	Khaliapali, Chhanutmal
			Turekela	Badabanki	Sanabanki, Janki
				Ghunesh	Khujen, Bandanpali
			Belpara	Juba	JharPhataMunda, Bilaimara
				Dhumabhata	Khalkhali, Kalchikachar
3	Kalahandi	Bhawanipatna Sadar, Lanjigarh, Golamunda, M. Rampur and Th Rampur	Narla	Seragada	Upher, Deng Sargi
				Tulapada	Bhonara, lamsinghapur
			M.Rampur	Manikeraya	Araskupa, Sulesuru
				Mohanagiri	Ponda padar, Mohanagiri
			Golamunda	Chaparia	Banjipadar, Chapria
				Brundabahal	Dumerbahal, Brundabahal
4	Bargarh	Padampur, Paikmal, Jharbandh and Gaisilet	Padampur	Burden	Siletally, Bardapally
				Khaliapally	Badimal, Banjenmunda
			Paikmal	Bartunda	Bartunda, Badibahal

			Jamset	Baruamunda, Durtijharia
		Jharbandh	Laudighara	Sikaripally, Niljihpatra
			Bhainsadarha	Suryamanipur, Nalipani

Table 4.3 gives the total number of focus group discussion participants from SHGs and migrant households in the villages.

**Table 4.3: District wise Focus Group Discussions**

District	FGDs with SHG members	FGDs with members of Migrant Households	Total No. of FGDs and participants
Baragarh	11 (90 participants)	6 (44 participants)	17 FGDs with 134 participants
Kalahandi	7 (72 participants)	6 (84 participants)	13 FGDs with 156 participants
Nuapada	12 (121 participants)	12 (133 participants)	24 FGDs with 254 participants
Bolangir	6 (42 participants)	6 (82 participants)	12 FGDs with 124 participants
<b>Total</b>	36 FGDs (325 participants)	30 FGDs (343 participants)	66 FGDs with 668 participants



## **Deployment of Resources**

Data was collected by investigators who had prior experience in the use of PRA Tools, conducting FGDs and use of questionnaires. Keeping the above in view four NGOs were identified and engaged as field partners for the same. The tools and data collection methodology were finalised based on experience of partners and experts in the field. Four teams were deployed at district levels. One field coordinator was engaged for the purpose of monitoring and was actively engaged in overseeing the data collection. Further, four district level supervisors were appointed by the NGOs. Senior experts were also involved in the quality assurance of the entire process. Based on the data collected, appropriate statistical tools were used for data analysis.

## CHAPTER V

### Background of Study Area

Odisha besides being one of the poorest states of the country is characterised by huge disparity between the rich and the poor. Analysing the monthly per capita consumption expenditure (MPCE) as a proxy of income, of the state reveals that while the bottom 25% of its population has a MPCE of only Rs.659.00, it is Rs. 96,200.00 for the top 25% of the population comprising of the richest households of the state. This is about 140 times of MPCE of the poorest quartile of the state's population.

The quartile division of population has been given in the following table.

<b>Table 5.1 : Monthly Per Capita Consumption Expenditure in Odisha</b>	
<b>Frequency</b>	<b>MPCE in Rs</b>
25	659.09
50	837.50
75	1100.00
100	96,200.00
<b>Source: NSSO Unit level, 2013</b>	

An indicator supplementing the above information is the extent of availability of BPL and Antodaya ration cards in the study area as can be seen in the table 5.2

Further, the prevalence of the extent of poverty was analysed using the data of ration cards. 76.2 % households have been issued ration cards for purchase of food grains at a subsidised rate. From amongst this number, the percentage of households with BPL or Antodaya Ration cards, signifies the number of the poorest of the poor in the state and study area. About 69% of the states population own BPL or Antodoya ration cards (NNS Data 2013). In four study districts,

Kalahandi has the highest number of BPL and Antodaya card holders at 78.1%., followed by Nuapada with 77.2%, followed by Bolangir with 72% and Bargarh with 67%.

<b>Table 5.2: Types of Ration Card</b>			
<b>Districts</b>	<b>Antodaya</b>	<b>BPL</b>	<b>Others</b>
Bolangir	<b>13.10</b>	<b>58.90</b>	28.00
Bargarh	<b>0.20</b>	<b>66.80</b>	33.00
Kalahandi	<b>34.70</b>	<b>43.40</b>	21.90
Nuapada	<b>8.70</b>	68.50	22.80
<b>Odisha State Total</b>	<b>4.7</b>	<b>64.1</b>	<b>31.2</b>
<b>Source: NSSO Unit level, 2013</b> <b>Note: Figures are in percentages</b>			

The table 5.3 gives percentage of households having MGNREGA job card across different districts of Odisha. Out of 30 districts, in Sonpur district, almost 100 per cent households report having MGNREGA job card followed by Debgarh (86.0%) and Kandhamal (85.4%). Out of four study districts, households from Baragarh district report having maximum job cards followed by Bolangir and Kalahandi.

**Table 5.3: District wise percentage of households with MGNREGA Card**

<b>Districts</b>	<b>Households with MGNREGA job card</b>	<b>Households without MGNREGA job card</b>
Anugul	55.1	44.9
Bolangir	75.7	<b>24.3</b>
Baleshwar	64.8	35.2
Bargarh	77.3	<b>22.7</b>
Baudh	77.2	22.8
Bhadrak	40.4	59.6
Cuttack	44.2	55.8
Debagarh	86.0	14.0
Dhenkanal	79.5	20.5
Gajapati	60.6	39.4
Ganjam	12.2	87.8
Jagatsinghapur	83.8	16.2
Jajapur	62.3	37.7
Jharsuguda	60.6	39.4
Kalahandi	60.1	<b>39.9</b>

Kandhamal	85.4	14.6
Kendrapara	40.9	59.1
Kendujhar	64.5	35.5
Khordha	39.6	60.4
Koraput	42.8	57.2
Malkangiri	42.6	57.4
Mayurbhanj	80.5	19.5
Nabarangapur	60.1	39.9
Nayagarh	52.2	47.8
Nuapada	55.5	<b>44.5</b>
Puri	41.3	58.7
Rayagada	60.6	39.4
Sambalpur	80.7	19.3
Sonapur	97.7	2.3
Sundargarh	73.9	26.1
<b>TOTAL</b>	<b>60.4</b>	<b>39.6</b>
<b>Source: NSSO Unit level, 2013</b>		
<b>Note: Figures are in percentages</b>		

## Agricultural Profile

Under agricultural profile of districts, the percentage of small, medium and large farmers was analysed. Households who possess less than 2 hectare were categorised as small farmers, those owning more than 2 hectare but less than 10 hectare were categorised as medium farmers and households who own more than 10 hectares belong to large farmers' category. Table 5.4 corresponds to the above data.

<b>Table 5.4: Percentage of Agricultural Households according to their land holding size</b>			
<b>Districts</b>	<b>Small</b>	<b>Medium</b>	<b>Large</b>
Bolangir	<b>92.00</b>	<b>8.00</b>	
Bargarh	<b>88.70</b>	<b>10.60</b>	0.80
Kalahandi	<b>80.50</b>	<b>19.50</b>	
Nuapada	<b>94.30</b>	<b>5.70</b>	
<b>Odisha State Total</b>	<b>95.1</b>	<b>4.8</b>	<b>0.0</b>
<b>Source: NSSO Unit level, 2013</b>			
<b>Note: Figures are in percentages</b>			

Out of the 30 districts of the state, in 26 districts, more than 90 per cent of agricultural households belonged to the small farmer category. In the four districts identified for the study, more than 80 per cent of households own less than 2 hectares of land. In Nuapada, 94.30 per cent of households belong to small farmer category followed by Bolangir (92%), Bargarh (88.7%) and Kalahandi (80.5%).

On analysing the cropping pattern in all these districts.

<b>Table 5.5: Percentage of Farmers Cultivating Cereals &amp; Pulses</b>		
<b>Districts</b>	<b>Cereals &amp; Pulses</b>	<b>Others</b>
Bolangir	<b>63.10</b>	<b>36.90</b>
Bargarh	<b>76.50</b>	<b>23.50</b>
Kalahandi	<b>82.20</b>	<b>17.80</b>
Nuapada	<b>93.90</b>	<b>6.10</b>
<b>Total</b>	<b>83.2</b>	<b>16.8</b>
<b>Source: NSSO Unit level, 2013</b>		
<b>Note: Figures are in percentages</b>		

More than 80 per cent of farm households cultivate cereals and pulses in Odisha. Out of 30 districts, in 15 districts more than 90 per cent of households are cultivating cereals and pulses. In Nuapada, 93.90 per cent of households cultivate cereals and pulses followed by Kalahandi (82.20) and Baragarh (76.50). Since cereal and pulses are mostly used for consumption purposes only, without much cash remuneration, it can be seen that all the three districts that have been identified survive on subsistence farming mostly. Comparatively, Bolangir, is better positioned at 63.10 %.

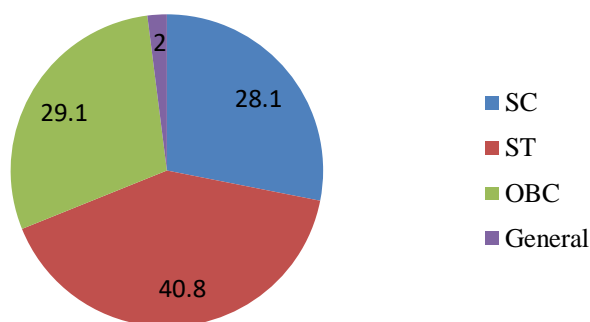
## CHAPTER VI

### Findings

The findings chapter begins with a detailed profile of the households (HHs) interviewed. Their social composition, occupation, land holding, income etc. The audience must understand the area and the profile of HHs very clearly, before they get into the findings.

This section discusses the findings from Household Survey, Focus Group Discussions and Participatory Rural Appraisal Tools from the districts of Nuapada, Bolangir, Kalahandi and Bargarh of Odisha. The composition of the population surveyed is presented in Figure 6.1 shows that 40.8% of the migrant households belonged to the Scheduled Tribes, followed by 29.1% from Other Backward Classes and 28.1% from the Scheduled Castes Only 2% of the migrant households surveyed belonged to the general category.

**Figure 6.1: Percentage of households by social categories**



**Source: Primary Survey, 2018**

### Climate change induced distress migration

For the study, climate change and distress migration have been conceptualised on the basis of pre-defined indicators in the questionnaire based on the framework of the study, which was finalised after literature review, consultation with climate change and migration experts as well as with the Department of PR & DW, GoO and ICRG Team. Climate change is understood by analysing the



perceptions of households on weather variability indicators. Whereas, distress migration is conceptualised by analysing indicators on a range of reasons for mobility. Based on these indicators, the analysis seeks to understand whether climate change has induced distress migration. Before, discussing the association between these two indicators, an independent analysis was conducted to assess the perceptions of households regarding climate change and reasons of migration.

### **Climate Change**

From the sample households, information on perceptions about weather change

There is very less rainfall in our area.  
How do we cultivate the land?  
Besides, the wage works allocated for the local communities are carried out through contractors and machinery. At least if we migrate we get some work and wages.

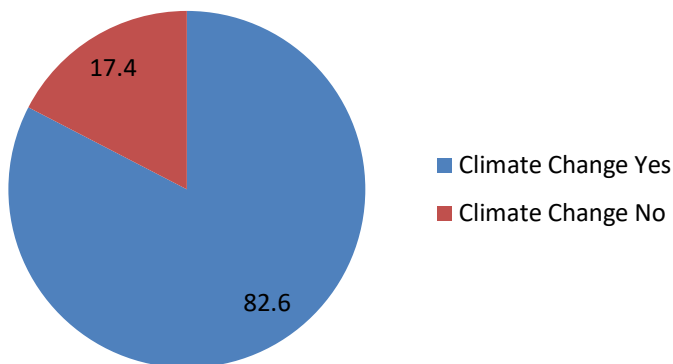
Arashkupa Village, Manikera GP,  
M.Rampur Block, Kalahandi

was sought. Subsequently, responses of households on climate change was obtained. The information comprised issues relating to inadequate and excessive rains, frequent droughts and floods, delay in monsoons, duration of rainy and warmer days. All these indicators have been taken into consideration for constructing the variable climate change. The assumption was, if the

household responded positively to any one of these indicators, it indicated climate change.

The figure 6.2 depicts the perception about climate change by the 600 households surveyed. It was found that over 80 per cent of households perceived the occurrence of climate change in their area.

**Figure 6.2: Perceptions on Climate Change (in percentage)**



**Source: Primary Survey, 2018**

### **Reasons for migration**

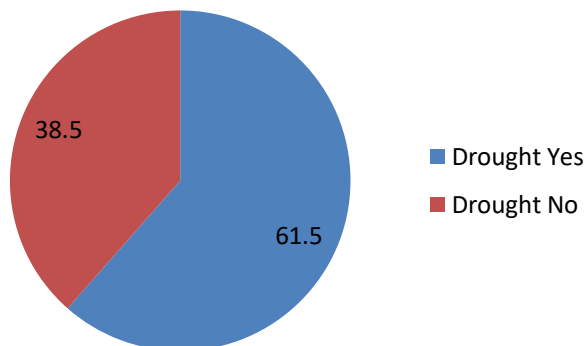
In the context of the study, distress migration can be understood as migration for survival due to economic and social hardships often without any choice of an alternative livelihood option locally.

The indicators for distress migration were considered on the basis of a variety of reasons. Reasons are by and large drought related, inadequate wages in the local labour market or unemployment and insufficient income to manage day to day expenses, leisure activities and so on. Out of these reasons, if the migrant household responded towards insufficient income to manage day to day expenses, they have been considered as distress migrants.

There are frequent droughts in our area and hence we cannot cultivate the land. There is not enough wage work available locally. What option do we have than to migrate

Kandumunda Village,  
Jharbandh GP of Sinapalli  
Block, Nuapada

**Figure 6.3: Drought induced migration (In percentage)**



**Source: Primary Survey, 2018**

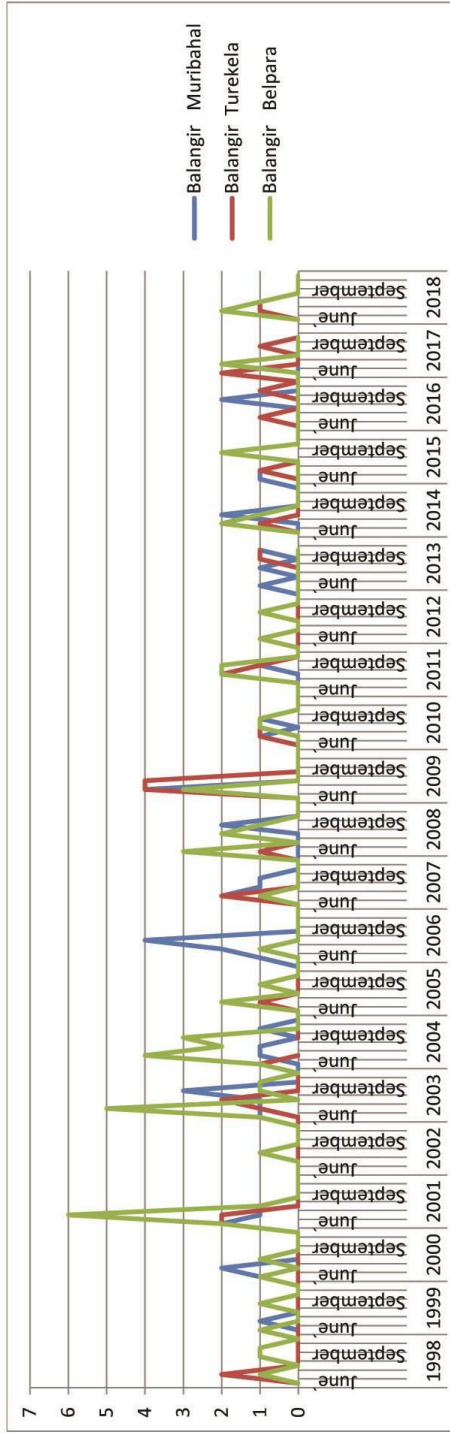
Figure 6.3 shows the percentage of drought induced migrant households. Out of the total respondents, 61.5 per cent of households mentioned that they migrated because of drought.

Furthermore, since drought is also derived from rainfall data, the secondary data was analysed to see the variations in rainfall over the last twenty years. The rainfall data was analysed block wise to know the trend. At the first stage, month wise rainfall data (between 50 to 100mm) has been discussed and at the second stage month wise rainfall data above 100 mm has been analysed. The data depicted the following trend.

#### **Rainfall between 50 to 100 mm**

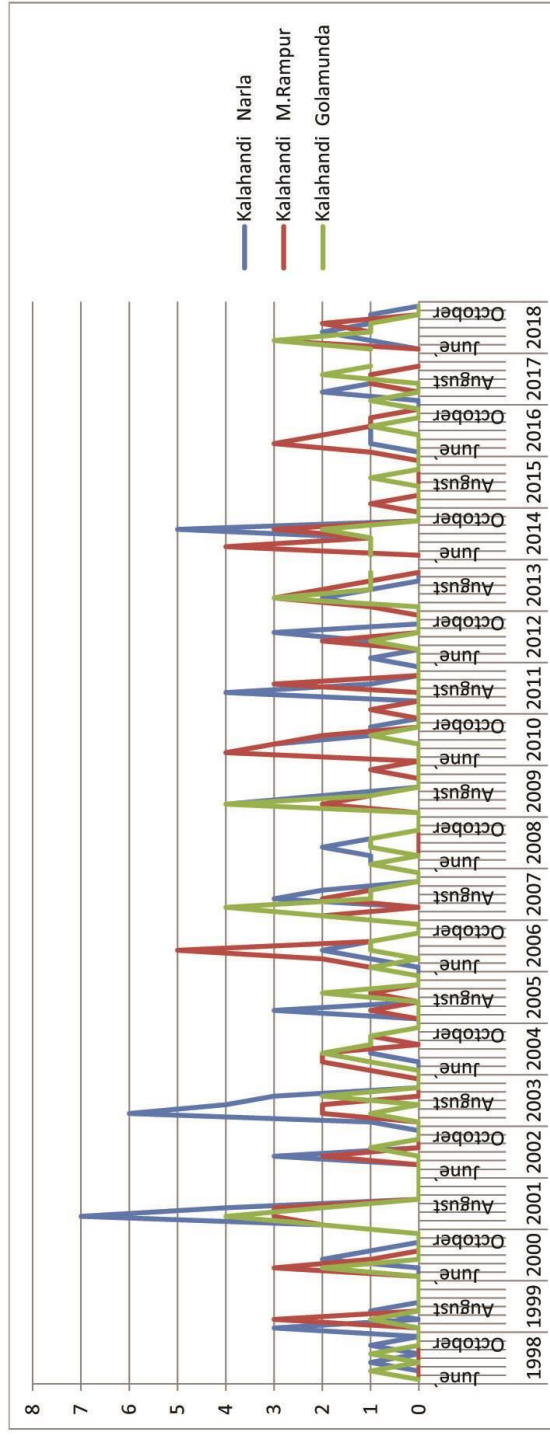
The rainfall data for all the blocks of four districts indicate scanty rainfall even in rainy season. Belpara Block of Bolangir district has faced only 6 days of heavy rain. Similarly, Narla Block of Kalahandi has faced 7 days of rainfall between 50 to 100 mm. Similar trend was observed in all other blocks.

**Figure 6.4: Rainfall trend in Bolangir**



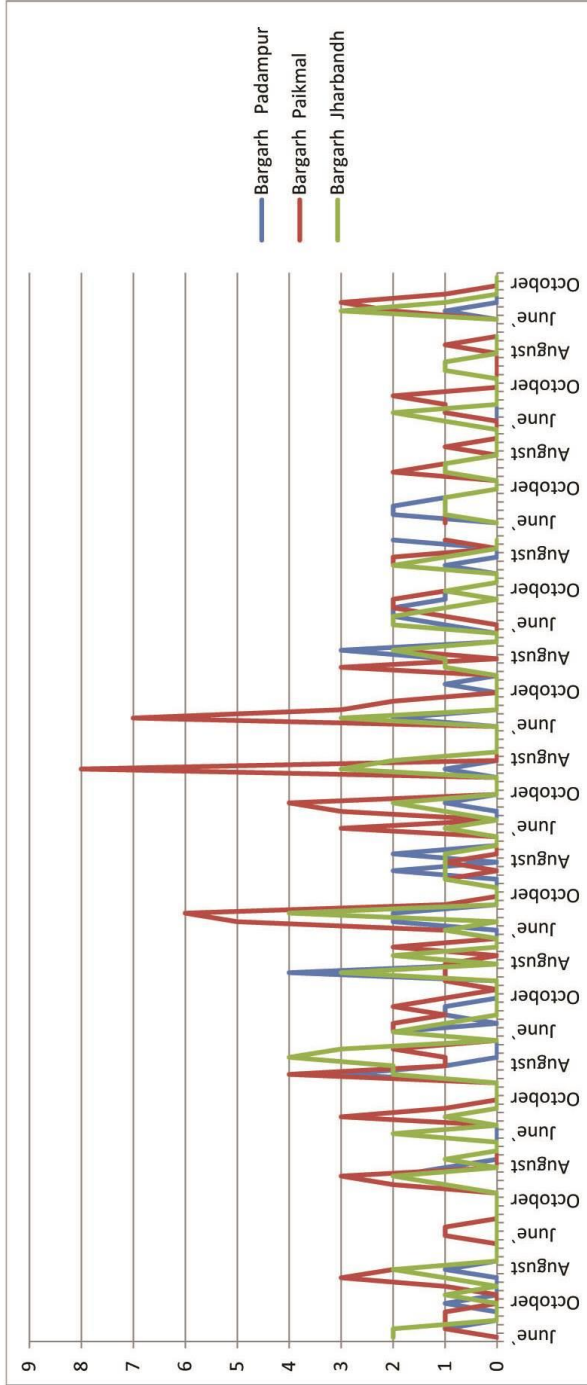
Source: Special Relief Commissioner, Govt. of Odisha.

**Figure 6.5: Rainfall trend in Kalahandi**



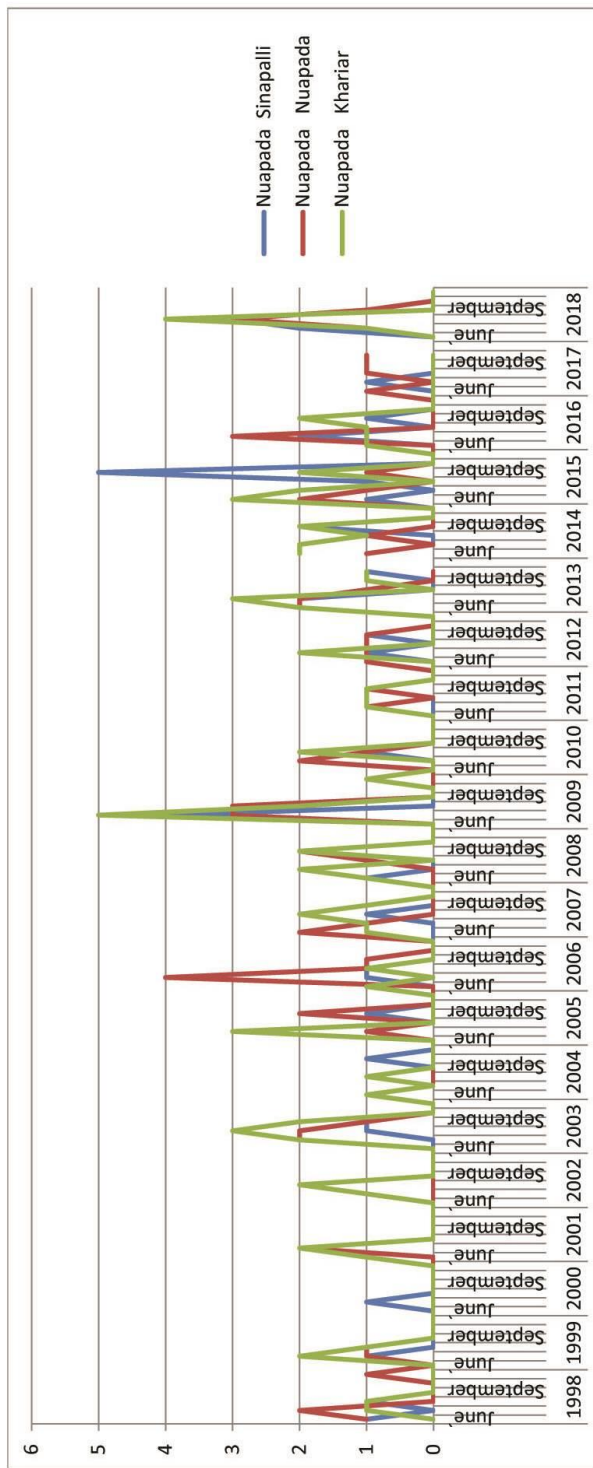
Source: Special Relief Commissioner, Govt. of Odisha.

**Figure 6.6: Rainfall trend in Baragarh**



Source: Special Relief Commissioner, Govt. of Odisha.

**Figure 6.7: Rainfall trend in Nuapada**



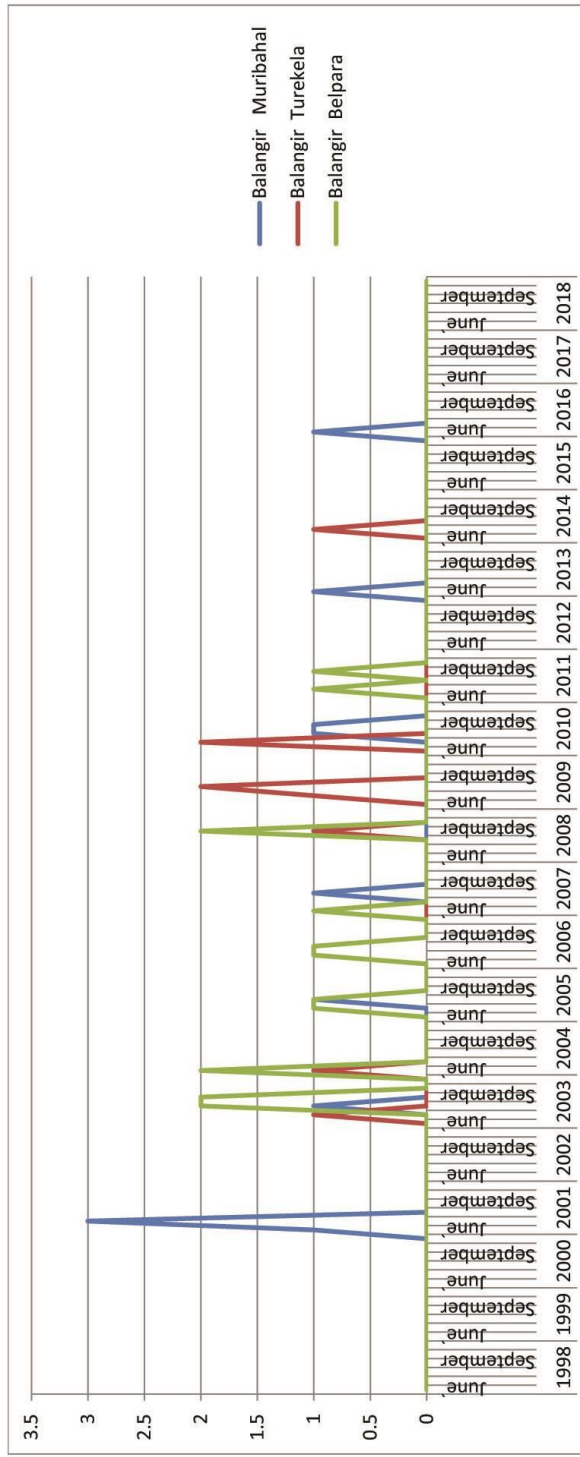
Source: Special Relief Commissioner, Govt. of Odisha.

### **Rainfall more than 100 mm**

Analysing rainfall trend of more than 100 mm, it was found that Muribahal Block of Bolangir district had a maximum 3 days of rainfall more than 100 mm. Likewise, M. Rampur Block of Kalahandi district had 5 days of rainfall higher than 100 mm. Similarly, when rainfall trend for the two remaining districts was analysed, it was observed that rainfall more than 100 mm was only for two days.

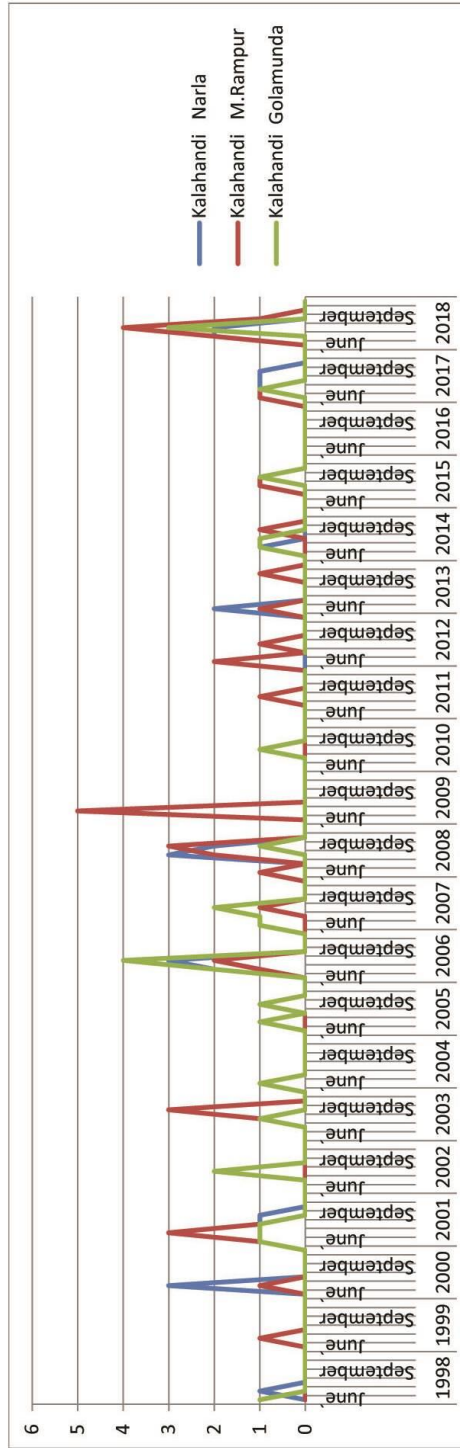


**Figure 6.8: Rainfall trend in Bolangir**



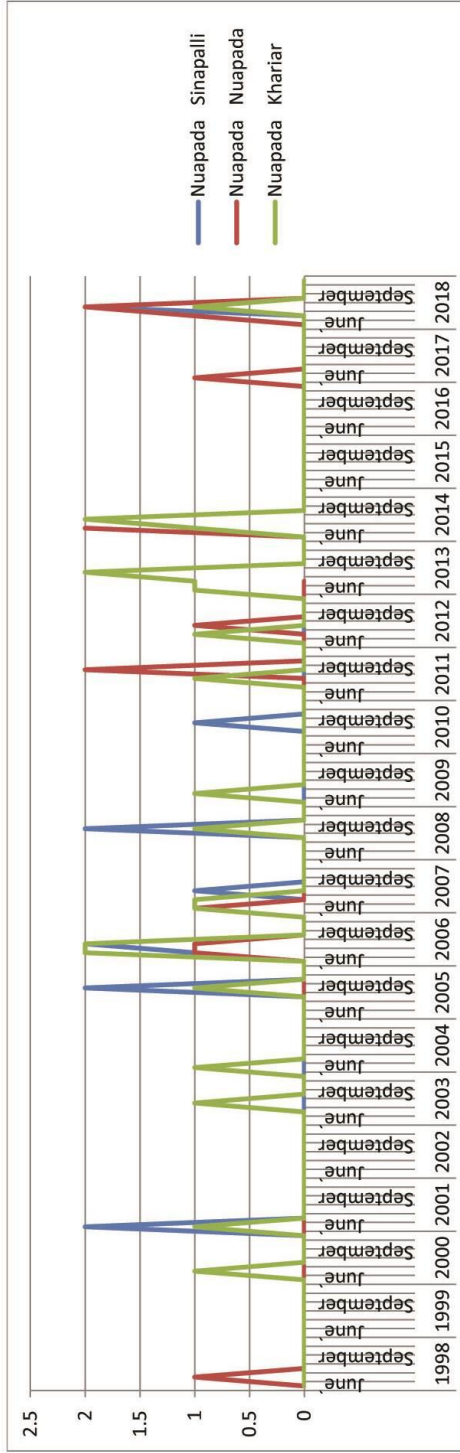
Source: Special Relief Commissioner, Govt. of Odisha.

Figure 6.9: Rainfall trend in Kalahandi



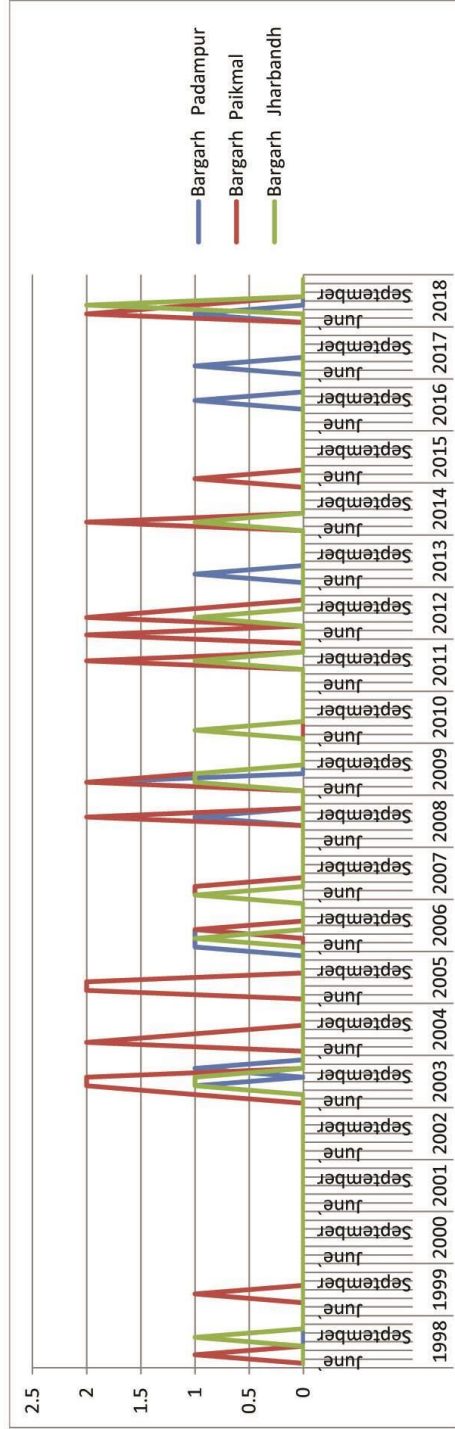
Source: Special Relief Commissioner, Govt. of Odisha.

**Figure 6.10: Rainfall trend in Nuapada**



Source: Special Relief Commissioner, Govt. of Odisha.

Figure 6.11: Rainfall trend in Baragarh



Source: Special Relief Commissioner, Govt. of Odisha.

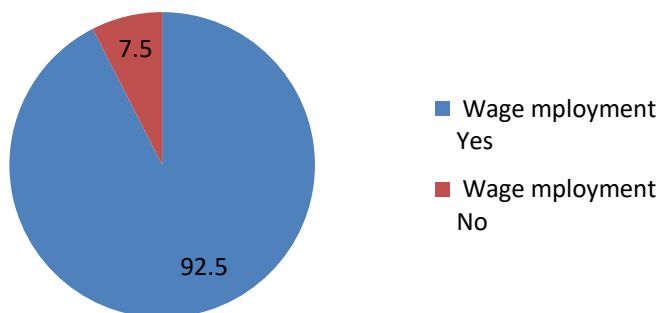
<b>Table 6.1 People's Perception around rainfall trend</b>			
<b>District</b>	<b>Time frame</b>	<b>People's perception of Change in rainfall pattern</b>	<b>Impact on agriculture</b>
Bargarh	1990-2018	Increase in rainy days from 47 to 55 days. Shift of rainy season from July to October to July to November.	Irregular rainfall, not useful for agriculture.
Kalahandi	1990-2018	Decrease in rainy days from 4 months to 3 months. Shift of rainy season (from July to October) to (July to September). Intensification of rainfall in a short span.	Erratic rainfall leading to crop damage
Nuapada	1990-2018	Decrease in rainy days from 4 months 20 days to 3 months and 15 days. Shift of rainy season (from July to October-November) to (July to September-October). Intensification of rainfall in a short span.	Erratic rainfall leading to crop damage
Bolangir	1990-2018	Decrease in rainy days from 4 months to 3 months. Shift of rainy season (from July to October) to (July to September). Intensification of rainfall in a short span.	Erratic rainfall leading to crop damage

Table 6.1 about People's perception around rainfall and its impact on agriculture was analysed based on data from focus group discussions and analysis of time-trends. In the districts of Kalahandi, Bolangir and Nuapada, people reported that the number of rainy days has declined while the intensity of rainfall during the

rainy days has increased. As a result, they do not get adequate rainfall when they need it during agriculture season. Whereas, it rains heavily for a few days, leading to crop damage and declining agriculture income. In general, the FGDs revealed that the duration of rainy season has reduced from four months (July – October) to three months (July – September).

Figure 6.12 indicates that more than 90 per cent of households mentioned unavailability of wage labour in local job market as the sole reason for out-migration.

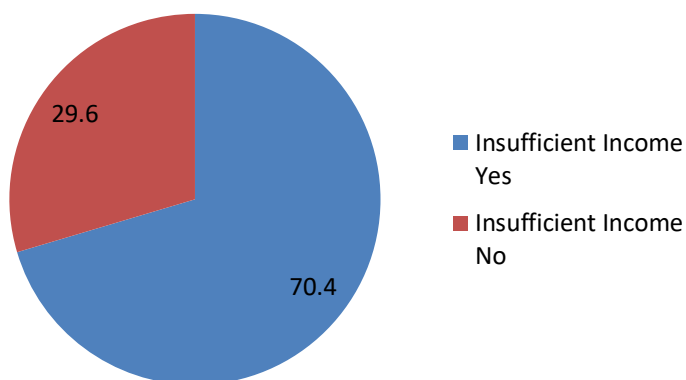
**Figure 6.12: Availability of Wage Employment in the Local Labour Market (In percentage)**



**Source: Primary Survey, 2018**

Other than these indicators, questions on adequacy of household income was also asked for managing daily expenses in which more than 70 per cent of households mentioned that they migrated because of insufficient income.

**Figure 6.13: Insufficient income (In percentage)**



**Source: Primary Survey, 2018**

**Table 6.2: Relationship between climate change and distress migration**

Relationship between Climate Change and Distress Migration		
Climate Change	Distress Migration	
	No	Yes
No	47.1	52.9
Yes	25.9	74.1
Chi-Square	18.538 (.000)	
Phi Cramer's V	.176 (.000)	

**Source: Primary Survey 2018**

Table 6.2 indicates the relationship between climate change and distress migration in which a chi-square between climate change and distress migration was calculated. The test on chi-square value shows that it is highly significant

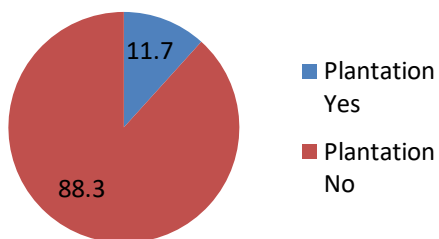
which means that there is an association between climate change and distress migration. Phi and Cramer’s V were also calculated to identify the strength of association. The result shows the strength of association is strong and statistically significant.

### **MGNREGS, NRM and distress migration**

The existence of water harvesting systems and plantation were the only two indicators considered to study the impact of NRM on distress migration from other indicators like increasing irrigation and using climate resilient crops in 2017-18 as the later were not found to be significant. The analysis showed that 23 percent households mentioned that they are beneficiaries of water harvesting systems. In case of plantation, 11.7 per cent of households have reported to have benefitted.

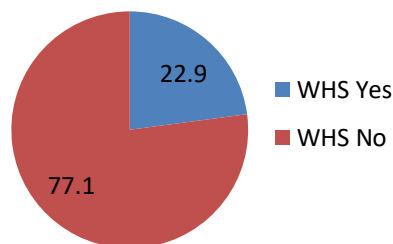
**Figure 6.14: Beneficiaries of Plantation**

**(In percentage)**



**Figure 6.15: Beneficiaries of WHS**

**(In percentage)**



*Source: Primary Survey, 2018*

By taking into consideration, WHS and plantation indicators, NRM indicator was constructed which include households that have benefited from either of them. The association between NRM works and distress migration is presented in table 6.3. The study did not find any statistically significant relationship between NRM works and distress migration. Besides, the strength of association between these two indicators is also very weak.



**Table 6.3: Relationship between NRM works and distress migration**

Relationship between NRM works and distress migration		
NRM Works	Distress Migration	
	No	Yes
No	30.5	69.5
YES	26.7	73.3
Chi-Square	.772 (.380)	
Phi Cramer's V	.036 (.380)	

*Source: Primary Survey 2018*

Similarly, the PRA data on the impact of NRM in 39 villages where water harvesting systems, land development or plantation works have been taken up under MGNREGS corroborates the survey data. In other words, such NRM initiatives have little or no impact on migration. Table 6.4 gives the number of NRM works undertaken by MGNREGS in the four districts.

**Table 6.4: Relationship between NRM works and distress migration (PRA)**

Relationship between NRM works and distress migration (PRA)				
Details of work	Kalahandi	Nuapada	Baragarh	Bolangir
	Total No. of Villages with NRM works under MGNREGS - 6	Total No. of Villages with NRM works under MGNREGS- 13	Total No. of Villages with NRM works under MGNREGS- 12	Total No. of Villages with NRM works under MGNREGS – 8
<b>No of WHS</b>	0	9	25	14

<b>No of farm ponds</b>	6	22	48	14
<b>No of plantations</b>	95	2	6	150
<b>No of land developed</b>	0	133	0	7
<b>No of canals</b>	1	2	3	0
<b>Total HH in the villages</b>	613	3249	1883	821
<b>No. of migrant HH in the village</b>	209	468	419	414
<b>% of migration</b>	34	14	22	50

*Source: Primary Survey 2018*

Further, table 6.4 highlights that although a considerable amount of WHS and farm ponds have been constructed in the study villages in the district of Bolangir (11 WHS, 11 Farm Ponds, 150 Ac of Plantation), yet there is 50% out migration from the villages. On the other hand, while similar interventions are less in the case of villages in Kalahandi (0 WHS, 6 Farm Ponds, 95 Ac of Plantation), out-migration is less compared with Bolangir.

Comparison between the districts of Bargarh and Nuapada revealed that although investment in NRM works in the villages of Bargarh (25 WHS, 48 Farm Ponds, 6 Ac of Plantation) is higher than that in Nuapada (9 WHS, 22 Farm Ponds, 2 Ac of Plantations), the percentage of migration in the former (22% migration in Bargarh) is higher than the latter (14% migration in Nuapada).

The WHS constructed in our village in 2016. But the location is near road so it does not get water from the nearby hills. Only 4 families benefit from it

Kalchikachar Village, Dhumabhata GP, Belpada Block, Bolangir

The following reasons were outcome of the 66 FGDs with 668 participants held in the four districts:

### **1. Inadequate water retention in the structures:**

The FGD data shows that most structures constructed for harvesting water or regeneration of traditional WHS dry out by

the month of October. It was reported that this was primarily because of technical reasons. Either the structures were not constructed considering the appropriate catchment area or need further deepening to retain water to suffice the needs of the villagers.

### **2. Inadequate community participation:**

The data from GP level FGDs show that in most cases the communities were not aware of the location nor consulted for the construction of the NRM structures. Hence, their traditional and local knowledge around the catchment area was not optimized.

A pond was constructed through MGNREGA and some of us are benefitting from it. It does not have sufficient water for all households on village. If it was deeper then may be it could have retained more water for longer

Badibahal Village, Bartunda GP, Paikmal Block, Bargarh

## **MGNREGS and convergence for livelihood expansion**

Considering that MGNREGS is the largest wage employment generating programme, attempt was made to examine the extent of wage generated under

the programme and its convergence with other government department interventions.

Minimum wage was reported by 23 persons to be Rs.100/-. 6 persons have reported that the maximum wage they received from MGNREGS was Rs.230/-. The survey indicated that the average wage from MGNREGS was Rs.174.26 which is more or less similar to official data. In 2017-18, the average wage from MGNREGS in Odisha was Rs.173.91 while in 2018-19, the average wage is Rs.180.11. The survey data regarding wage rates was closely aligned to the official data for all the four districts. The data indicated that MGNREGS has generated 21.40 no of wage days per household on an average.

**Table 6.5: Average wage rate per day per person (in Rs.)**

	Average wage rate per day per person (in Rs.)		
	2018-19	2017-18	2016-17
Bolangir	181.85	175.93	173.94
Nuapada	181.52	175.92	173.95
Kalahandi	181.94	175.94	173.97
Bargarh	181.86	175.92	173.93
ODISHA	180.11	173.91	171.51

PRA exercises in different villages of Bolangir, Bargarh and Nuapada districts

studied indicated that on an average three members from households, two adult men and one adult woman migrate. However, in Kalahandi only one adult male migrated. The period of migration was around seven months from October to June (after harvesting and return before the new cultivation season). Thus, MGNREGS has been able to provide alternative income for three weeks only; there is a gap of

We get around 20 days of work per household. That helps us to some extent, but the payment is irregular. If payment was done on a weekly basis it would have really helped us. Mostly road work has been done in our area.

Chanutmal Village, Badsaimara GP, Muribahal Block, Bolangir

over six months during which the households migrate. However, it was found that in one of the villages, Satchuan of Belpada Block of Bolangir District, where 100-200 days of wage employment could be provided, distress migration was arrested (Annexure 2)

The Figure 6.16 depicts seasonality mapping of the activities of the villages, focussing on cultivation, migration and MGNREGS works.

**Figure 6.16: Seasonality mapping of activities**

Activities	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
<b>Cultivation</b>												
<b>Migration</b>												
<b>MGNREGS work</b>												

The seasonality mapping reveals that households generally migrate during the time when MGNREGS works are operational. Thus, MGNREGS works do not arrest migration in the four districts studied. Survey data indicates that only a

small number of respondents (1.5%) reported that the income from MGNREGS was sufficient to manage their day to day expenses. Majority of them said that the income was insufficient to meet their daily requirements and they mostly relied on PDS, borrowings from neighbours and taking loans from SHGs. The data from the FGDs conducted in the villages highlight the following issues:

- Insufficient MGNREGS wage opportunities:
  - Due to lack of awareness amongst communities around the process of raising demands.
  - Lack of strong community based organisations including PRIs which could facilitate the process of raising demands and ensuring approval of projects to meet the above.
- Irregular payments: While it is observed from the household survey that on an average 14.9% of households receive their payments on a fortnightly basis, it was also reported in the FGD, that payments for some pockets for the year 2014-2016 have still not been made. This has created doubts about trustworthiness of the programme.
- Issues in process of generating demand for wage work: As per the field guideline of MGNREGS, the programme envisions to provide for a minimum of 100 days of wage employment to a job seeker. For this, the job seeker is expected to register their demand with the Gram Panchayat (GP) first. Following this, it is the responsibility of the GP to provide wage opportunities to the job seeker as per his/her demand. The job cards under the MGNREGS have been designed accordingly. The first page records the number of days of wage the family needs and the subsequent pages note the actual provision against the demand. The FGDs indicated that in reality it was the opposite. Since the community was not aware of this provision, they were first allocated days of work depending on the shelf of projects approved for their GP. Based on the available work (number of days), each worker accordingly got the opportunity for waged employment. The number of days was later recorded in the first page of the card allocated for recording demand. Therefore, the real demand of the families is invisible on paper. In some cases, the job cards were

completely blank although the households were engaged in works under MGNREGS. Photographs of job cards are provided in Annexure 1.

- Demand and provision of work: It was seen that in some pockets, although the families had demanded around 48 days of wage employment, they were provided wage days around half of their demand. Following are some of the instances.

While examining the extent of works that MGNREGS has taken up for creating livelihood avenues, various types of interventions taken up under MGNREGS were discussed from which the sample households have gained wage employment in 2017-18.

**Table 6.6: MGNREGS and livelihood opportunities**

<b>Table 13: MGNREGS and livelihood opportunities (2017-18)</b>						
<b>Household Responses</b>	<b>Works under MGNREGS (in percentages)</b>					
	<b>Road Construction/ Repair</b>	<b>Pond Construction/ Deepening</b>	<b>Water Harvesting Structures</b>	<b>River Bunding</b>	<b>Plantation</b>	<b>Others</b>
<b>Yes</b>	53	29.4	6.2	3.2	16.2	2.2
<b>No</b>	47	70.6	93.8	96.8	83.8	97.8

*Source: Primary Survey, 2018*

The study specifically focused on five different types of works: road construction, pond construction/ deepening, water harvesting structure, river bunding, plantation and others. Out of these, in road construction alone 53.0 per cent households have reported to have benefited through wage labour. Similarly, people have benefited from some livelihood opportunities from pond construction/ deepening and plantation.

## CHAPTER VII

### Conclusions and Recommendations

#### Conclusions

- There is a strong association between climate change and distress migration in the households studied in the districts of Bolangir, Bargarh, Kalahandi and Nuapara. Climate change is represented by rainfall and temperature parameters. Distress migration occurs when there is 'insufficient income'. The test on chi-square value shows that there is an association between climate change and distress migration. Phi and Cramer's V were also calculated to identify the strength of association. The result shows the strength of association is strong and statistically significant. Refer table 7.1.
- NRM works undertaken by MGNREGS have not resulted in arresting distress migration. The Phi and Cramer's V values indicated that there was no statistically significant relationship between NRM works and distress migration. Refer table.7.2. This is primarily due to inability in creating technically sound systems for adequate water retention, and soil and water conservation.
- The works undertaken by MGNREGS have resulted in arresting distress migration, partially, due to wage employment. It is observed that in many instances, households do not get more than three weeks of wage in a year, against their need for seven months. Among the households studied, MGNREGS is not understood to have a sustainable livelihood approach. There is hardly any instance of adequate farm, non-farm, or off farm based livelihood asset creation. Further, robust supply chain management systems have not been established. Enabling systems and processes to facilitate the operationalization of livelihood development and management were also found to be inadequate. Participation of community level institutions in the planning, implementation and monitoring of MGNREGS was found to be very weak . Convergence with other programmes for creating sustainable livelihood security is not clearly visible.



## Recommendations

- It is recommended that appropriate village level institutions may be formed and strengthened for participatory planning, execution and monitoring of the works under MGNREGS. Job Seekers' Committees may be formed at the village level, which would not only create awareness about the programme and its processes, but would also facilitate the job-seeking households in registering their demand with the Gram Panchayat. In the initial few years, an active local civil society organization may provide hand holding support to the village level organization till its systems and processes have been established, the community is well aware about the programme and participates actively in it.
- It is recommended to ensure shifting of the paradigm from wage employment to self-employment. This is possible through a livelihood approach, where each migrant household is considered to benefit from the MGNREGS works, both in short and long term. This calls for a systematic identification and planning for livelihoods of migrant households. It is recommended that DFID's Sustainable Livelihood Framework is adopted in a holistic manner to strengthen all the systems, capacities and assets of a migrant household to enable it to cope better with climate stressors.
- It is recommended that the NRM works under the programme may be taken up through an area saturation approach. The area saturation approach would include identifying a cluster for integrated natural resource management and taking up all the works in the cluster to ensure that its ecosystem is strengthened. For example, the Govt. of West Bengal, through its Usharmukti scheme<sup>1</sup>, has significantly improved the uptake of NRM works leading to positive impacts for communities. In Odisha, such a programme could operate in close partnership with Odisha Watershed Development Mission for optimal results. The approach will ensure economies of scale in provisioning of right support services.

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<sup>1</sup> <https://usharmukti.nregawb.in/>

- It is also recommended to take a cluster approach and link each NRM work with the livelihood development of the migrant families. The same could flow from a cluster level plan, possibly at the gram panchayat level, for not less than three or four years, which would include an Integrated Natural Resource Management Plan and a Livelihood Development Plan, both operating in synergy. Convergence with other departments and missions, like the Odisha Livelihood Mission must be brought in systematically. It is expected that an area saturation approach will not only benefit the households owning land, but will create avenues for entrepreneurship around agriculture produce and livestock for the landless households. Therefore, the cluster level plans need to also incorporate livelihood planning for the landless households keeping in view the possible entrepreneurship opportunities.
- It was observed during fieldwork that some of the works under the programme, like community well for irrigation, require special skills. Hence, it is recommended that the scope for NRM works under MGNREGS may be expanded to incorporate semi-skilled labour, where such skilled labourers are not available within the community.
- The observation around the NRM structures points towards a need for stronger technical assessment and planning keeping in view the scope of impact of the structures. In this regard, the traditional knowledge of the communities can play an important role. This may be utilized through developing a partnership of the community, the technical expert appointed by the state and the Gram Panchayat Representatives. It is recommended that efforts be made to bring these three partners together right from the planning, monitoring and execution of the NRM works.
- Further, community engagement may be enhanced by engaging producer companies for procurement of the materials used for road construction, construction of WHS, etc. which would not only ensure that the community benefits further from these processes but also provide a platform for larger engagement of the community.
- MGNREGS should facilitate provision of collective management of assets created by women SHG members. For example, sustained leasing

of ponds for pisciculture, lands for plantation/ horticulture (usufruct), livestock development, seed banks and micro-enterprises along with training them on the entire package of practices pertaining to each activity. In Bolangir, where the percentage of land less is high, non-farm and off-farm livelihood activities like livestock development, small enterprise development, etc. should be intensified. Further, these interventions may be placed within community level institutions to ensure their sustainability. The mature SHGs in Bolangir and Kalahandi, may be suitable for the same.

- Although developing assets on personal land is permissible under MGNREGS, the focus on this activity is minimal. It is our firm recommendation that people would benefit more should investments be done on personal lands. It is recommended, especially in the case of Nuapada, characterised by undulated, unbounded land, land development and proper land treatment may be undertaken in a larger scale.
- Participants of MGNREGS could be taken on exposure visits to villages in the same district and outside in the state where the programme has fared better and results have been optimum. The visits could be organised by the Panchayat/local civil society organisation.
- While it is observed that the payments are generally received every fortnight, during the focused group discussions with the communities, it was informed that payments for the years 2014-2016 are still not received in some pockets. It is recommended for timely payment and an urgent review of the pending dues, which may be cleared at the earliest.
- Currently, under the programme an average of 21.40 number of days of wage employment are generated in the sample districts, leaving a gap of 78.60 number of days. It is also noted that households are in need of 200 days of wage employment with timely payment, for arresting distress migration. Additionally, it is recommended to ensure the availability of maximum work from October through February, i.e. during the period of beginning of migration so that it can provide an alternative choice to the households against distress migration.

- It is recommended that skills of the migrant households, both traditional and acquired, may be assessed and appropriate training and employment opportunities be created to absorb them in the local area. For example, many of the households have mastered the skill of brick making and masonry. Appropriate small scale enterprises catering to these skill sets may be established to arrest migration.

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## Annexure 2

MGNREGS Performance (2018-19 till date)									
S. No.	State/UT	Active Workers	Total Workers	%	Assets Created	Person days generated	Households Benefitted	DBT Transactions (Numbers)	
1	ANDAMAN AND NICOBAR	20,626	52,879	39.01	2,273	1,55,064	5,636	21,352	
2	ANDHRA PRADESH	86,89,025	1,76,79,797	49.15	59,18,315	21,38,26,034	41,24,819	4,73,29,129	
3	ARUNACHAL PRADESH	2,46,271	4,54,061	54.24	14,637	53,52,414	1,45,111	2,12,962	
4	ASSAM	40,23,189	78,63,909	51.16	2,63,582	3,86,35,064	13,60,104	61,82,242	
5	BIHAR	54,08,061	2,35,28,602	22.99	9,05,308	10,66,99,853	26,93,400	93,43,533	
6	CHHATTISGARH	62,14,642	87,03,931	71.4	16,79,428	11,82,87,837	23,26,095	2,11,89,426	
7	DADRA & NAGAR HAVELI	0	25,927	0	0	0	0	0	
8	GOA	10,001	47,708	20.96	1,954	12,554	969	0	
9	GUJARAT	24,79,994	86,03,259	28.83	8,21,152	3,67,56,648	8,46,670	49,11,363	
10	HARYANA HIMACHAL PRADESH	6,77,529	16,70,048	40.57	1,10,178	65,45,568	2,10,070	7,60,633	
11	JAMMU AND KASHMIR	10,95,056	23,24,220	47.11	5,10,690	2,52,83,841	5,24,778	23,30,072	
12	KASHMIR	15,46,387	21,71,764	71.2	4,09,322	2,71,42,558	5,36,492	22,83,666	
13	JHARKHAND	30,28,958	81,30,636	37.25	12,21,942	4,56,02,422	11,45,497	72,08,514	
14	KARNATAKA	66,45,144	1,40,35,761	47.34	27,60,230	8,98,86,929	19,58,039	99,64,791	
15	KERALA	23,78,824	54,17,189	43.91	13,54,872	8,09,26,110	14,30,830	1,79,23,058	
16	LAKSHADWEEP	459	16,027	2.86	18	8,655	225	0	
17	MADHYA PRADESH	95,95,030	1,61,94,850	59.25	38,68,330	17,83,07,413	36,99,000	3,04,52,459	
18	MAHARASHTRA	55,88,245	2,15,72,896	25.9	12,23,416	7,07,99,614	16,54,148	1,27,99,313	

19	MANIPUR	6,13,117	10,27,786	59.65	44,175	61,98,600	4,72,014	6,74,347
20	MEGHALAYA	7,65,564	11,20,903	68.3	1,18,814	2,70,38,049	4,42,139	24,04,489
21	MIZORAM	2,09,601	2,45,473	85.39	70,511	1,51,65,781	1,94,819	24,97,007
22	NAGALAND	5,77,532	7,21,735	80.02	72,057	98,80,930	3,79,007	1,95,833
23	<b>ODISHA</b>	<b>58,13,705</b>	<b>1,63,09,039</b>	<b>35.65</b>	<b>13,59,243</b>	<b>7,17,97,251</b>	<b>19,85,312</b>	<b>1,20,80,592</b>
24	PUDUCHERRY	55,681	1,42,908	38.96	4,416	5,74,429	30,795	1,57,531
25	PUNJAB	12,21,170	25,53,271	47.83	1,21,040	1,69,85,745	5,98,808	28,40,786
26	<b>RAJASTHAN</b>	<b>1,00,66,406</b>	<b>2,32,97,326</b>	<b>43.21</b>	<b>15,10,829</b>	<b>22,71,70,605</b>	<b>45,98,950</b>	<b>2,19,60,286</b>
27	SIKKIM	98,017	1,34,022	73.14	33,781	28,85,833	60,201	2,74,534
28	<b>TAMIL NADU</b>	<b>88,05,789</b>	<b>1,19,63,670</b>	<b>73.6</b>	<b>21,60,259</b>	<b>21,03,60,508</b>	<b>53,79,816</b>	<b>4,58,31,168</b>
29	TELANGANA	59,15,109	1,16,78,454	50.65	37,87,460	10,88,77,401	24,49,905	2,12,43,027
30	TRIPURA	9,64,440	10,53,179	91.57	7,70,848	2,27,13,531	5,43,668	35,32,113
	<b>UTTAR PRADESH</b>	<b>1,07,49,512</b>	<b>2,35,57,863</b>	<b>45.63</b>	<b>55,61,318</b>	<b>19,05,67,849</b>	<b>48,10,708</b>	<b>2,36,15,046</b>
32	UTTARAKHAND	10,21,275	17,36,889	58.8	4,46,169	1,89,20,616	4,57,622	18,83,537
33	<b>WEST BENGAL</b>	<b>1,39,86,068</b>	<b>2,72,15,062</b>	<b>51.39</b>	<b>37,48,973</b>	<b>32,68,15,909</b>	<b>43,17,550</b>	<b>3,40,42,417</b>
	<b>Total</b>	<b>11,85,10,427</b>	<b>26,12,51,044</b>		<b>4,08,75,522</b>	<b>2,30,01,81,616</b>	<b>4,93,83,197</b>	<b>34,61,45,226</b>

Source: [www.nrega.nic.in](http://www.nrega.nic.in)

### Annexure - 3

	No of Job cards issued	Total no of workers	No of active job cards	No of person-days generated (in lakhs)		Average days of employment provided per Household		Average Wage rate per day per person(Rs)		Total No of HHs completed 100 Days of Wage Employment		% payments generated within 15 days			
				2017-18	2016-17	2017-18	2016-17	2017-18	2016-17	2017-18	2016-17	2017-18	2016-17	2017-18	2016-17
Bolangir	2.89	6.68	1.66	48.92	39.03	47.06	43.79	173.94	173.94	205.78	2,816	13,010	81.7	25.03	29.53
Nuapada	1.26	3.79	0.81	19.53	17.66	22.64	38.7	173.95	173.95	198.41	960	4,742	87.14	30.13	38.78
Kalahandi	2.91	6.5	1.66	31.72	26.59	35.81	30.55	173.97	173.97	200.79	1,302	653	90.43	53.27	53.24
Baragarh	2.47	6.17	1.09	17.89	13.64	12.57	28.19	173.92	173.92	201.66	866	432	90.61	39.19	43.32
ODISHA	64.64	163.09	35.8	922.11	774.48	894.46	38.09	173.91	173.91	188.02	68,070	35,750	85.48	33.53	37.08

## Annexure 4

### **1. Case Study of Satchuan Village**

Satchuan a village of 97 households, is in Tentutlimunda Gram Panchayat of Belpada block of Bolangir district. The households belong to Scheduled Tribe and a small number of OBC. About 80% of its inhabitants depend on wage labor as their primary source of livelihood. Out-migration started with 55 households in the village since 2012, due to unavailability of inadequate wages locally. The village community along with NGO ADHIKAR, decided to intervene by using wage provisions under MGNREGA and reduce migration. As the first step, a Job-Seekers' Committee was formed in the village in 2012. The committee comprised 75 job seekers, 12 members were selected to form the executive committee with a President and Secretary in place. The role of the committee was to raise awareness amongst the households on the scope and opportunities of MGNREGA in providing minimum of 100 days of wage employment per household. The NGO facilitated the members to interact with the Gram Panchayat and regularly engage with the latter to demand for work. The committee gained from the active support of the Gram Rozgar Sevak. Subsequently, the three critical interfaces - the Community, the Civil Society Organization and the representative of the Gram Panchayat, were in sync to ensure the proper functioning of the programme.

After the first year of the operation of the Job-Seekers' Committee, the number of migrating households came down to 36 in 2013 and to 16 in the following year. Since the year 2015, there is no out-migration in the village, as the people were ensured 100-200 days of wage days per household. So far, among the member households of the committee, 55 households have completed 150 days of work and 30 households have completed 200 days of work.

Further, the Job Seekers' Committee decided to facilitate the construction of a water harvesting structures (WHSs). They prepared a micro-plan, which was approved by the District Rural Development Agency after being vetted by Gram Sabha. The WHS (at Tangarmunda) could irrigate 50 acres land of 15 farmers. Likewise, other WHSs were mobilized through the support of different



departments of the State and around 135 acres of 80 households have been irrigated.

Satchuan village sets an example of how distress migration could be arrested due to MGNREGS, primarily due to harmony between the state, community and civil society organization in the optimal operationalization of works under the programme.

**Details of more than 100 days wage earned in Satchuan (2015-16):**

Govt. of India  
Ministry of Rural Development  
Department of Rural Development

District: BOLANGIR      Block: BELPARA      Panchayat: TENTELMUNDA

**S4.15 Household Provided Employment Greater than or equal to 90 Days in the Financial Year 2015-2016**

S.No	Job card No.	Head of Household	Employment Days
1	OR-09-002-022-002/22263	SHUKRU PARUA	108
2	OR-09-002-022-002/22268	KOUSHALYA NAIK	142
3	OR-09-002-022-002/22273	TIRTHA NAIK	114
4	OR-09-002-022-002/22299	SHYAMA NAIK	95
5	OR-09-002-022-002/22300	SUNDARLAL NAIK	123
6	OR-09-002-022-002/22309	GOLEKHA NAG	133
7	OR-09-002-022-002/22322	DHANSING BISHI	154
8	OR-09-002-022-002/22335	MADAN HANSA	98
9	OR-09-002-022-002/22354	DUSHASAN KUMBHAR	151
10	OR-09-002-022-002/22371	RADHAKANTA NAG	189
11	OR-09-002-022-002/22397	GANDARAM BANGULA	140
12	OR-09-002-022-002/22423	BUDU DANDSENA	200
13	OR-09-002-022-002/22444	LOKANATHA NAIK	144
14	OR-09-002-022-002/22460	TANKADHAR DANDSENA	131
15	OR-09-002-022-002/22498	KALARSING BISHI	152
16	OR-09-002-022-002/22501	GOBARDHANA NAG	160
17	OR-09-002-022-002/22503	TARAKANTA NAIK	103
18	OR-09-002-022-002/22520	SANTOSH KHAMARI	110
19	OR-09-002-022-002/22527	KESHABA KUMBHAR	168
20	OR-09-002-022-002/22528	GARUDA NAIK	150
21	OR-09-002-022-002/22531	TIKECHANA BISHI	95
22	OR-09-002-022-002/22537	NETRA NANDA NAG	95
23	OR-09-002-022-002/22553	HARIBANDHU BHUE	156
24	OR-09-002-022-002/22563-A	BISWAMBAR NAIK	90
25	OR-09-002-022-002/22567	SUNANDA NAIK	200
26	OR-09-002-022-002/22571	ABHAYA NAIK	167
27	OR-09-002-022-002/22589	GANDHI NAIK	186
28	OR-09-002-022-003/21759	MOHANA BARGE	95
29	OR-09-002-022-004/21089	ARUNA MALLIK	199
30	OR-09-002-022-004/21093	KSHYAMA MALLIK	181
31	OR-09-002-022-004/21094	ANTA BISWAL	194
32	OR-09-002-022-004/21095	ANGAD BISHWAL	98
33	OR-09-002-022-004/21096	KHAGESHWAR DHARUA	158
34	OR-09-002-022-004/21097	JAYAMANGAL DHARUA	172
35	OR-09-002-022-004/21101	RAGHU MARDHA	130

10/25/2009

## 2. Case Study of Kaikei Sagaria

Kaikei Sagaria a 60 year old widow of, Sunapur (Golabeda) Village of Boden block under Nuapada district used to migrate regularly to Andhra Pradesh for bricks making with her family. The family comprising of her, her son and his adolescent children used to migrate for 6 - 7. Although she owned about 5 acres of upland, she could only grow paddy in it during Khariff.



In 2014, the NGO Lok Drushti, informed her of the provision of farm ponds through MGNREGA. Being encouraged by the NGO, she approached the gram panchayat office for a farm form, which was later approved. She, along with her family began digging the pond and also received wages for it. She also availed a loan of Rs. 3000 /- from the SHG for vegetable cultivation.



The farm pond and the loan from SHG opened new doors for income for her during the lean season providing her an alternative to distress migration.

Additionally, she also used the pond for pisciculture which earned her more income. Over the years, Kaikei has returned her loan to the SHG and the family has stopped migrating by gaining

from such support. At present one of her granddaughters has completed matriculation, while another is studying in a private Schools at Khariar town. She has plans for establishing an onion Godown, vermin Compost and a Goatery shed.

### 3. Case Study of Sunapur Village

Sunapur a tribal dominated village of Boden Block under Nuapada district is a large village with 380 households and a population of 1806. Most households depended on either daily wage or only on Khariff agriculture. With inadequate and erratic rainfall and no irrigation facilities in the village, agriculture became non-



remunerative and the small and marginal farmers began to migrate different

cities and town in search of job since the year 2000. Eventually by 2011, 185 households were migrating to the brick kilns in Andhra Pradesh. In the year 2011 Lokadrusti a voluntary organisation based at Khariar implemented a project “MGNREGA and sustainable agriculture” in 4 Gram Panchayats of Boden Block and



organised the migrants families through awareness meetings and trainings. A Job Seekers Committee was formed and each migrant household became its member. The members were trained on the subject of MGNRGEA and its provision by the NGO. Later the job seekers committee, with support from the NGO, developed village level micro-plans which were approved at Pallisabha, Gram Sabha, recommended by the BDO, Boden and approved by PDDRDA Nuapada. As a result of it 3 WHS, 15 Dug Wells, 40 Farm Ponds, 30 acres of orchard development and 450 acres of land was developed within a



period of 3 years. This resulted in employment generating opportunities for the villages. In 2013, the number of migrant households came down to 26. Since the year 2015, there is no out-migration in the village.

The ground water level of the village which used to go down upto 25 feet during summers in the year 2011, has increased to 18 feet in 2017. Consequently, wells, farm pond, WHS are retaining enough water for both Khariff and Rabi crops. Sunapur Gram Panchayat sets an example of how distress migration could be arrested due to MGNREGS, primarily due to convergence between the state, community and civil society organization.

## Annexure 5

### **Stakeholders Consulted**

Mr. Umi Daniel, Director – Migration, Aid Et Action.

Ms. Mary Bina Surin, Programme Officer, Migration, Tata Trust, Odisha.

Mr. Jitendra Kumar Nayak, Regional Managaer, Tata Trust, Odisha.

Mr. Nagen Kumar Mallick, Nodal Officer, Climate Change Cell, Dept. Of Agriculture and Farmers' Empowerment

Mr. Rabindra Kumar Mishra, Chief Statistician, Directorate of Agriculture and Food Production, Odisha.

Mr. Purna Chandra Panda, Meteorological Inspector, Directorate of Agriculture and Food Production, Odisha.

Mr. Umesh Purohit, NGO Youth Service Center, Bolangir.

Mr. Adikanda Biswal, NGO MASS, Bargarh.

Mr. Prashant Panda, NGO Lok Drushti, Nuapada.

Mr. Sushant Kumar Swain, NGO Harsha Trust, Bhubaneswar.

Mr. Dharmendra Nayak, NGO Harsha Trust, Bhubaneswar.

Ms. Neeta Sabar, Asst. Agriculture Officer, Khariar Block.

Mr. Trinath Tandi, Agriculture Officer, Khariar, Block.

Mr. Raghunath Mahare, Asst. Block Education Officer, Turekela.

Mr. Pradeep Kumar Bhoi, District Labour Officer, Bolangir.

Mr. Abinash Samantray, Asst. Programme Officer, MGNREGA, Belpada Block Bolangir.

Mr. Gopal Majhi, Programme Officer, MGNREGA, Golamunda Block, Kalahandi.

Mr. Rabi Chandra Dandasena, Gram Rozgar Sevak, Tentulimunda Gram Panchayat, Belpada, Bolangir.

**Annexure 6**

**HOUSEHOLD INTERVIEW SCHEDULE**

*(Note: Please encircle the preferred responses)*

Sl. No. \_\_\_\_\_

**Name of the District:**

**Name of the Block:**

**Name of the G.P**

**Name of the Village:**

**Household No:** \_\_\_\_\_

**1.0. General Details**

1.1 Name of the respondent \_\_\_\_\_

<b>1.2</b>	<b>Caste</b>	<b>1.3</b>	<b>Religion</b>
a	SC (1)	a	Hindu (1)
B	ST (2)	b	Christian (2)
C	OBC (3)	c	Muslim (3)
D	General (4)	d	Any other (4)

**2.0 Family Particulars**

<b>2.1</b>	<b>Category</b>	<b>2.2</b>	<b>Family type</b>
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a.	BPL (1)	a.	Nuclear (1)
b.	APL (2)	b.	Joint (2)
c.	Other (3)	c.	Extended (3)

### 2.3 Family Details

Sl. No.	Number of the Family Member	Relationship with HOH	Sex Male:1 Female:2	Age	Marital Status Married: 1 Unmarried: 2 Widow: 3 Divorcee/Separated: 4 Children: NA	Literacy Status Illiterate: 1 Functionally Literate: 2 Primary: 3 ME:4 High School:5 Intermediate: 6 Graduate: 7 Above graduate: 8 Other: 9	Pr. Occ. Agriculture:1 Daily Wage:2 Business:3 Salaried: 4 Artisan:5 NTFP collection:6 Dependant:6 Student:7 Children:9 Homemaker/housewife:10	Sec. Occ. Agriculture:1 Daily Wage:2 Business:3 Salaried: 4 Artisan:5 NTFP collection:6 Dependant:6 Student:7 Children:9 Homemaker/housewife:10
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								
9.								
10.								

2.4	Type of cards the family possess	2.5	Whether benefited under any scheme
a.	BPL with Ration card (1)	a.	ICDS (1)
b.	APL (2)	b.	Old age/widow/disability pension (2)
c.	PDS (3)	c.	NREGA (3)
d.	MGNREGA (4)	d.	Mid day meal (4)
		e.	Emergency feeding (5)
		f.	Any other (specify) (6)
<b>2.6</b>	<b>Insurance coverage:</b>		
a.	Members covered_____		
b.	Male_____		
c.	Female_____		
d.	Nil		



2.7. Do you face any kind of natural disasters? Yes – 1 No – 2

2.8 Natural hazards faced	2.9 Frequency of disasters faced	2.10 Last disaster faced	2.11 When faced	2.12 Impacts of these natural disasters
Drought (1) Flood (2) Cyclone (3) Any Other (4) - Specify				
	Once in a year (1)			
	Once in two years (2)			
	Once in three years (3)			
	Once in five years (4)			

**3.0 Infrastructure Facility**

3.1	Type of House	3.2	Location of house
a.	Kutchha (1)	a.	Near river (1)
b.	Pucca (2)	b.	Near forest (2)
c.	Mixed (3)	c.	Feet of the mountain (3)
		d.	Plain land (4)

3.2 Toilet available – Yes (1), No (2).

3.3 Livelihood sheds available – Yes (1), No (2).

3.4 Electricity infrastructure available – Yes (1), No (2).

3.5. Type of Roads

3.6. Type of Water sources

a. open wells (1)

b. tube wells/ bore wells (2)

c. tanks/ ponds (3)

d. others (4) specify \_\_\_\_\_

#### 4.0 Land and Land Use

4.1 Do you own land? Yes - 1 No 2

##### 4.1.1 If yes, details about land

Type of Land	Area in Acre	Whether Irrigated/Un-irrigated		Source of irrigation				Area under irrigation in Ac.	Water availability in months	Sufficiency of water for irrigation
		Yes – 1	No - 2	From river /pond with pump set (1)	Lift irrigation (2)	Canal (3)	Rain fed (4)			
									1 month – 1 2 months – 2 3 months – 3 Less than 3 months - 4	Enough – 1 Not enough -2 Manageable Not enough at all - 3

## 4.2 Other type of land in use

Other type of land in use	Area in Acre	Whether Irrigated/ Un-irrigated		Source of irrigation				Area under irrigation in Ac.	Water availability in months	Sufficiency of water for irrigation
		Yes - 1	No - 2	From river /pond with pump set (1)	Lift irrigation (2)	Canal (3)	Any Water Harvesting System constructed under MGNER EGS (4)			
Encroached govt. land									1 month - 1 2 months - 2 3 months - 3 Less than 3 months - 4	Enough - 1 Not enough - 2 Manageable Not enough at all - 3
Share cropping										
Leased										

4.3	Major Crops (since the last 5 years)	Code	2018		2017		2016		2015		2014	
			Crop	Cultivation in Acres	Crop	Cultivation in Acres	Crop	Cultivation in Acres	Crop	Cultivation in Acres	Crop	Cultivation in Acres
a.	<b>Kharif</b>											
	Paddy	1										
	Till	2										
	Turmeric	3										
	Ginger	4										
	Black gram	5										
	Green gram	6										
	Vegetable	7										
	Seasonal fruits like mango,	8										

	banana, papaya, guava, jack fruits etc											
	Others	9										
b.	<b>Rabi</b>	<b>Code</b>	Crop	Cultiv ation in Acres	Crop	Cultiv ation in Acres	Crop	Cultiv ation in Acres	Crop	Cultivati on in Acres	Crop	Cultivati on in Acres
	Paddy	1										
	Till	2										
	Turmeric	3										
	Ginger	4										
	Black gram	5										
	Green gram	6										
	Vegetable	7										
	Seasonal fruits like mango, banana, papaya, guava, jack fruits etc.	8										
	Others	9										
<b>4.4</b>	<b>Are you aware of climate resilient / tolerant varieties</b>											
	Yes -1											
	No -2											
<b>5.</b>	<b>Do you insure your crop</b>											
a.	Always	1										
b.	Occasional ly	2										
c.	Never	3										
5.1	<b>Do you avail the insured amount</b>											

	against crop loss?					
	Yes	1				
	No	2				
5.2	If yes how many times have you availed insured amount?					
	Once	1				
	Twice	2				
	Thrice	3				
	More than 3 times	4				

## 6. Impacts of climate change.

<b>6.1</b>	<b>Do you feel there is an impact of climate change? Yes -1 No - 2</b>	
	If yes, what are they?	
6.2	Decreased precipitation	1
6.3	Increased need for irrigation with reduced water availability	2
6.4	New insects and diseases	3
6.5	Some insecticides/ pesticides become less effective	4
6.6	Any Other (Specify)	5
<b>7</b>	<b>Do you feel an Impact of Climate Change on Crop yields? Yes – 1 No - 2</b>	
	If yes, what are they?	

7.1	Decreasing yield	1
7.2	Increased need for fertilizers	2
7.3	Increased diversification of crops	3
7.4	Reduced crop income	4
7.5	Any Other	5

<b>8</b>	<b>What have you experienced in last five years due to impact of climate change?</b>	

### **9. Weather variability perceptions and adaptation undertaken**

	<b>Change</b>			<b>Adaptation</b>	
9.1	Less rain	Yes – 1 No - 2	9.a	Built a water harvesting structure	Yes – 1 No - 2
9.2	More rain	Yes – 1 No - 2	9.b	Bought insurance	Yes – 1 No - 2

9.3	More frequent drought	Yes – 1 No - 2	9.c	Undertook plantation through MGNREGS	Yes – 1 No - 2
9.4	More frequent floods	Yes – 1 No – 2	9.d	Irrigated more and more	Yes – 1 No - 2
9.5	Delay in the start of the rainy seasons	Yes – 1 No - 2	9.e	Changed from crop to livestock/business	Yes – 1 No - 2
9.6	The rainy seasons end sooner	Yes – 1 No - 2	9.f	Increased number of livestock	Yes – 1 No - 2
9.7	No change in number of warmer days	Yes – 1 No - 2	9.g	Migrated to another area	Yes – 1 No - 2
9.8	Increase in warm days	Yes – 1 No - 2	9.h	Found off farm jobs	Yes – 1 No – 2
			9.i	Cultivation of climate resistant crops	Yes – 1 No – 2

## MGNREGA

**10.1 Do you work under MGNREGA? Yes - 1 No - 2**

**If yes types of work**

10.1.1	Road construction	1
10.1.2	Pond construction	2
10.1.3	Water harvesting structures	3

10.1.4	Construction of river embankment	4
10.1.5	Plantation	5
10.1.6	Any other	6
<b>10.2</b>	<b>Which of the months MGNREGA works have been done by you?</b>	April – June – 1 July – Sept – 2 Oct – Dec – 3 Jan – March - 4
<b>10.3</b>	<b>No of days of wage labour guaranteed</b>	1 – 20 days – 1 21 – 50 days – 2 51 – 80 days – 3 Less than 100 days – 4
<b>10.3</b>	<b>How often you avail your wage money</b>	Once in 15 days– 1 Monthly – 2 Irregular - 3 Not paid at all - 4
<b>10.4</b>	<b>For how many days you have received your wage since last year? (per day wage @Rs. X # of days</b>	
<b>10.5</b>	<b>For how many days you have received your wages from MGNREGA this year?</b>	
<b>10.6</b>	<b>Is your income from MGNREGA sufficient?</b>	Yes – 1 No - 2
<b>10.7</b>	<b>If no how did you manage the daily requirements?</b>	



	PDS Rice – 1 Mid day meal – 2 Borrow from neighbour - 3 Take credit from SHGs/MFI/cooperative – 4, Extra work – 5 Migrate – 6, Any other – 6	
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## Migration

Do you migrate to other parts the state or India round the year? Yes – 1 No – 2

If yes why do you migrate?

11.1	Drought lead to less crop or no crops thus no income	1
11.2	No wage labour available in the local job markets	2
11.3	Insufficient to manage day to day expenses with the available income	3
11.4	For tourism	4
12.6	Any other	6

13	When do you migrate? December – May – 1, June – November – 2 Round the season - 3, Any other (Specify) - 4			
13.1	How many members in the household move to a different location in the last dry season?  Male - (    ) Female - (    )	Age	Male	Female
13.2	Where and when did the household move last ? Name the place ?	Place _____  Year/ Month_____		
13.3	Types of work you do there ?	Construction -1  Housekeeping - 2  Brick making – 3  Any other – 4 _____		

### 14. History of Migration

Age	Sex	Destination	2018		2017		2016		2015		2014	
			From (month)	To (month)	From (month)	To (month)	From (month)	To (month)	From (month)	To (month)	From (month)	To (month)

### 15. Livestock Possession

Code	Type of Livestock	Quantity	Use (IGP - 1, Ag. - 2, consumption - 3)	Income per annum (Rs.)	Average income per month (Rs.)
	Cow				
	Bullock				
	Buffalo				
	Goat				
	Sheep				
	Pig				
	Poultry				
	Any other				

### 16. Any Observation/Comment:

Name of Investigator:

Signature:

Date:

## Authors' Profile

**Supriya Pattanayak** is Vice Chancellor of Centurion University of Technology and Management, Bhubaneswar, Odisha. She is trained in Social Work and has extensive teaching, research and policy experience. Her research interest is in the field of gender and development issues, and social work pedagogy. She has worked with NGOs, multilateral and bilateral agencies, federal and state governments. In her role as State Representative (Odisha), Department for International Development India (British High Commission), she collaborated with various development partners in pursuance of harmonization of development efforts and achievement of MDGs. She has taught in Australian Universities and been Visiting Research Fellow at the St Petersburg State University, Russia.

**Smita Mishra Panda** is Professor and Director Research at the Centurion University of Technology and Management, Odisha. She is a gold medalist from Delhi University in Social Anthropology and Rural-Regional Development Planning and Gender Studies (Ph.D. Asian Institute of Technology, Thailand). Her research focuses primarily on gender and development, natural resource management (livelihoods, policies and institutions), governance, rural development, indigenous peoples and transgender issues. She has more than 25 years of teaching, research and consulting experience in South East Asia and India. Smita has worked as a researcher at the Asian Institute of Technology (Thailand); UN Researcher at the UNCRD (Nagoya, Japan); taught at the Institute of Rural Management, Anand (Gujarat); and has been a visiting faculty at the Norwegian University of Science and Technology (Norway), Monash University (Australia) and Curtin University (Australia). Widely travelled, she has presented papers in several national and international conferences. She has also published extensively in a number of scholarly journals

**Dr Bibhunandini Das** is currently working as a faculty member in the Post Graduate Department of Economics, Berhampur University. Prior to this, she was working as a faculty member in the School of Management, Centurion University of Technology and Management, Odisha. She has also worked as Research Associate in Public Health Foundation of India, New Delhi and as Consultant in Indian Institute of Public Health, Bhubaneswar. She has more than

8 years of teaching and research experience. Her research interest lies in diffusion of innovation and its impact in development. She has proficiency in handling large scale secondary data and applied development economics.

**Ms. Payal Nayak** is a development professional with 17 years of experience of work on gender based issues including, gender identity, gender based violence, women and livelihood, gender and environment, etc. in both rural and urban context in India. Working as a researcher, manager and thematic specialist she been exposed to issues with diverse context. She has completed her master's degree from the Tata Institute of Social Sciences. Her passion for gender issues moved her into pursuing her Master's degree in Gender and Development from the Institute of Development Studies, University of Sussex, U.K which nurtured her understanding of gender issues at on an international canvas. She has also received the prestigious Ford Foundation Fellowship. She has been associated with several agencies like Oxfam, International Labor Organization, World Vision India, Break Through, Mart Global, etc. as a consultant on various projects.