Department for International Development

Report on DTRT and BTRT Trainings in States

Bihar, Chhattisgarh and Odisha

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Infrastructure for Climate Resilient Growth in India (ICRG) Programme

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Contents

ABBREVIATION AND ACRONYMS

AAP	Assistant Agriculture Officer
ADS	Additional Sericulture Officer
AE	Assistant Engineer
AEE	Assistant Executive Engineer
APO	Additional Programme Officer
AR	Assisted Regeneration
BDO	Block Development Officer
BFT	Bare Foot Technician
BPM	Block Programme Manager
BTRT	Block Technical Resource Team
CC	Climate Change
CEO	Chief Executive Officer
CP	Computer Programmer
CRW	Climate Resilient Work
CRWs	Climate Resilient Works
CSO	Civil Society Organisation
DAO	District Agriculture Officer
DPC	District Programme Coordinator
DPM	District Programme Manager
DPR	Detailed Project Report
DRDA	District Rural Development Agency
EE	Executive Engineer
EE	Executive Engineers
GIS	Geographic Information System
GoI	Government of India
GP	Gram Panchayat
GPTA	Gram Panchayat Technical Assistant
GRS	Gram Rozgar Sevak
ICRG	Infrastructure for Climate Resilient Growth Programme
ICRG	Infrastructure for Climate Resilient Growth in India
IEC	Information Education and Communication
INRM	Integrated Natural Resources Management
IPPE	Intensive Participatory Planning Exercise
JE	Junior Engineer
LB	Labour Budget
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MoRD	Ministry of Rural Development
NRM	Natural Resource Management
OVG	Others Vulnerable Groups
PD, DRDA	Project Director, District Rural Development Agency
PMKSY	Prime Minister Krishi Sinchai Yojana
PO	Programme Officer
PRI	Panchayat Raj Institutions
PTA	Panchayat Technical Assistant
Q&A	Question and Answer
RWH	Rain Water Conservation
SHG	Self Help Group
STRT	State Technical Resource Team
VA	Vulnerability Assessment
WC	Water Conservation

1. Introduction

Technical staff engaged in the implementation of MGNREGS require knowledge of creation of productive assets of prescribed quality and durability together with knowledge on means of strengthening livelihoods. There is therefore need to strengthen technical skills of functionaries of MGNREGS and Line Departments on selection of work site, survey, design, planning, layout, execution and maintenance of works. The Ministry of Rural Development, Government of India (MoRD), designed and rolled out the 'Saksham' Training Programme in June 2018. This programme aims at creating a cadre of resource persons to impart trainings to state resource persons.

The trainings are done at three levels:

- State Technical Resource Teams (STRT) - Organized at the national level for the state technical resource teams from the different states. This is a training of trainers (ToT) to conduct the next level of training at the state level.
- District Technical Resource Teams (DTRT) - Organized at the state level for all the district technical resource teams. This is also a ToT to conduct the next level of training at Block Level.
- Block Technical Resource Team (BTRT) - Organized at the block level for all the block technical resource teams.

The ICRG Teams in the MoRD and the states of Bihar, Chhattisgarh and Odisha played an important role in design and execution of these trainings at all levels. The ICRG team designed a module on climate change and NRM works that is being used in all the trainings and on the recommendation of these teams, participants' feedback was also taken in all the trainings.

2 STRT training

The Project Management Unit (PMU) of ICRG in the MoRD supported the 'training needs assessment' (TNA) exercise in May 2017 following which, Saksham trainings were designed and launched in June 2017. The PMU has been supporting the MoRD in conducting the STRT trainings across India. The Team is also responsible for keeping track of the DTRT and BTRT training status and supports all the states in organizing them. On the recommendation of ICRG Team, post training feedback from all participants has been incorporated.

STRT trainings were conducted from July to December 2017. All the 14 STRT trainings, and 2 mop-up rounds were coordinated by the PMU in the MoRD. In 10 out of 14 trainings, the PMU staff conducted 1-4 sessions on need basis on the following subjects:

- Mission Water Conservation
- Use of GIS and planning
- Purpose of training – introductory session
- Adult learning principles

Two mop-up rounds of training were also conducted with the ICRG Team being responsible for one of these rounds. Training has also been delivered online and via Skype.

The State teams of Bihar and Chhattisgarh support their respective states in conducting refresher STRT trainings. In the Bihar refresher training, the ICRG Bihar Team conducted 2 sessions on overview of ICRG and selection of NRM works. All STRTs of all the districts participated in this training session. The State Government of Chhattisgarh also nominated three members from the ICRG team as State Resource Persons for the STRT training programme. The main sessions of the training programme were as follows:

- Introduction to Mission Water Conservation and MGNREGS;
- Basics of Watershed;
- Water Budgeting and Hydrogeology;
- Application of GIS in MGNREGS and GIS assisted NRM work planning
- DPR preparation.

3 DTRT and BTRT training

The state governments of the ICRG project states were invited by their respective state governments to conduct technical sessions on climate change, resilience, vulnerability assessment and selection of works in the DTRT and BTRT. The following section of the report covers state wise DTRT and BTRT trainings. The approach to the trainings were similar however, based on prior experience from the trainings carried out by the ICRG team in the previous year and the requirements of the state, the trainings were customized.

3.1 Bihar

BTRT members are the main technical persons responsible for implementation of MGNREGA. Strengthening their capacities on climate change, adaptation and design is important to mainstream the ICRG approach in MGNREGS for design of micro infrastructures.

3.1.1 DTRT training

Prior to the training, the ICRG Team in Bihar analyzed all permissible works under MGNREGS in Bihar and the progress of NRM works undertaken in the last 3 years. Thereafter, a Training Manual on NRM works was developed. A process tool for designing structures using Google Earth pro was also developed. The State Government of Bihar has identified the ICRG Team as resource persons for STRT and DTRT trainings. The content of the training was on the following areas:

- NRM approach under MGNREGS with a special focus on suitable work for both upland and lowland areas in the State.
- Criteria for selection of Climate Resilience Works (CRW) and important considerations for CRW - planning, designing, integration, engineering and convergence approach.
- Selection process for CRW and prioritization of works according to Vulnerability Assessment and Adaptation Packages toolkit.
- Case studies of ongoing ICRG-CRW work and selected works for 2017-18.
- Process and calculation for catchment area and total water requirement for different head.
- Use of Google Earth Pro and its different tools for designing, calculation of the perimeter, area, catchment and elevation, calculation of infrastructure storage capacity.

85 technical functionaries participated in the STRT and DTRT trainings conducted in two batches. These trainings were attended by MGNREGS Commissioner-cum-Director Social Forestry, Executive

Engineers, Assistant Engineers and Programme Officers. One STRT and one DTRT training each of one day duration was done at the state level in Patna.

3.1.2 BTRT training

The state government invited the ICRG state team to take day long sessions in BTRT trainings in all the districts of Bihar. The Team conducted these sessions In 17 districts for 645 participants – 11 districts that were covered are non-ICRG programme districts.

From previous experience of conducting technical training[1], the team designed the sessions to focus on building the concept of climate resilience. The sessions aimed at the following:

- Planning, selection, technical designs, estimate preparation and modifications required
- Execution of climate resilient works
- Promoting knowledge and awareness on climate change, climate vulnerability and its linkage to MGNREGS
- Synergy among different programmes/schemes to make the MGNREGS works durable and sustainable
- Addressing the potential impact of climate change on vulnerable groups and their resilience to adapt
- Use of vulnerability assessment and adaptation packages in selection of works

Expected learning outcomes

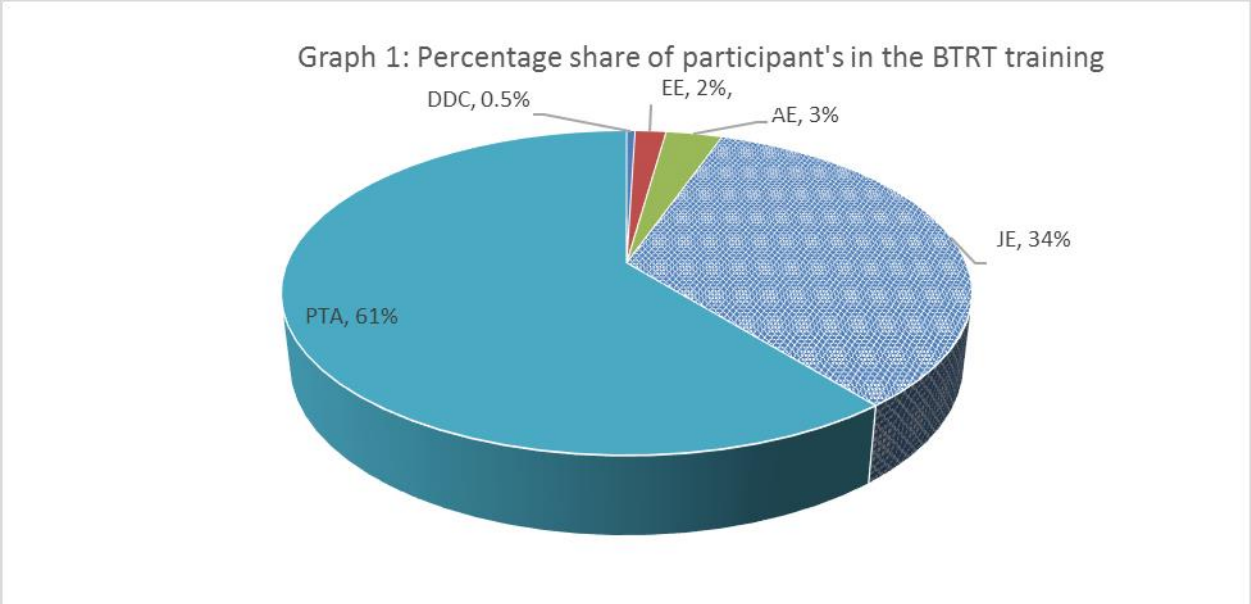
At the end of the training the participants of STRT, DTRT and BTRT training were oriented to:

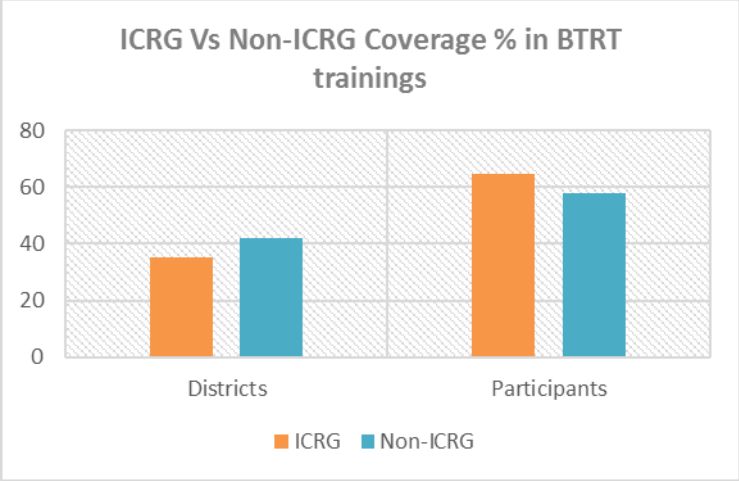
- Understand the concept of climate change and common terminologies in local, national and global context.
- Understand the ICRG project and its objectives.
- Understand the climate resilience perspective in permissible works under MGNREGS.
- Use mathematical tools for calculating surface runoff, slope percentage, water budget.
- Understand principles of Natural Resources designing for Climate Resilient Works under MGNREGS.
- Preparation of technical design of MGNREGS infrastructures using Google Earth Pro tool and GPS.

Sessions, Methodology, Response and Proceedings

Profile of Trainees – The ICRG team sensitized 645 persons of which 601 were BTRT members i.e. either JE or PTA of the concerned district. In addition, 3 DDC's and 11 EE's also participated in the training program.

[1] ICRG team conducted technical training in 8 ICRG selected districts in the year 2016-17.





- 7 women BTRT members participated in the training programme. These included one JE each from Nalanda, Patna and Aurangabad and one PTA each from Samastipur, Nalanda, Siwan and Begusarai. Bihar has very few women technical staff employed in MGNREGS.
- 272 participants from 6 ICRG districts and 373 participants from 11 Non-ICRG districts were trained.

Sessions conducted

- **Session I: ICRG Introduction and CRWs**: Participants were briefed about the ICRG programme – CRWs undertaken, capacity building exercises. Discussion via case study were done to demonstrate the linkage between MGNREGS and impact of Climate Change on the ground level.
- **Session 2: NRM and Adaptation packages:**
  - NRM approach and NRM works in MGNREG's: This session widened the discussion to include the Sustainable Development Goals and the Paris Agreement. The effect on groundwater availability due to climate change in critical zones and their subsequent impact on production of major crops was discussed.
  - Climate variability and Climate change: In this session participants were briefed about the findings of the Climate Modelling report done under the ICRG Programme. The various Climate Variability factors like delay in rainfall, long dry spells during monsoon, deficit or low rainfall were explained. The climate projections for Bihar were discussed and the key finding on increased rainfall variability and rise in temperature by 2030 was highlighted.

○ VA and Adaptation packages: The Vulnerability Analysis done under the ICRG project for the 35 ICRG blocks of Bihar was explained to participants. They were oriented on the most appropriate NRM work according to use of the VA toolkit. Participants were encouraged to use the VA tools for prioritization of works.

○ Convergence approaches: The need and opportunities for convergence was discussed in this session while linking it with the INRM model used in ICRG. The sectoral convergence models proposed and the schemes of other line departments like Fisheries, Horticulture, Agriculture and Forest Departments were also shared with the participants.

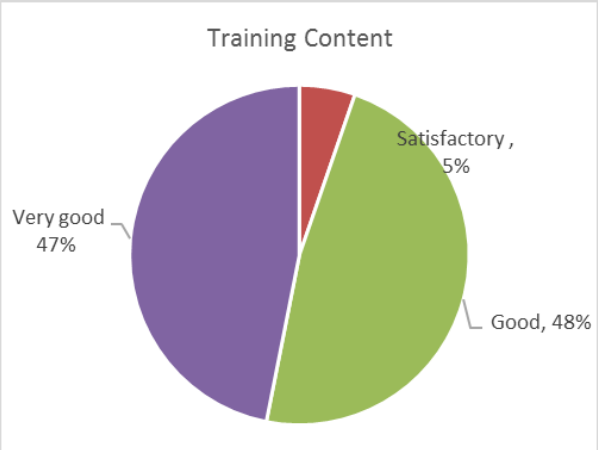
- **Session 3: Designing and practical demonstration using Google Earth pro** – This session covered three areas:

  - Mobile application to determine the latitude-longitude of an MGNREGS work. This was followed by live demonstration on Google Earth.
  - Participants were oriented about the different features of the Google Earth Pro application and its use in design.
  - Demonstration on calculation of catchment area: this session was on use if Google Earth pro tool and determining the perimeter, area, catchment, elevation and storage capacity of MGNREGS infrastructure.

  Participants were asked to calculate catchment area independently as an exercise.

Participant's Suggestion and feedback

A Training Feedback form was administered to 323 participants and anonymous responses sought.



- Training content: 95% of the respondents (303) found the training content "good or very good"; 5.3% (17) respondents rated training content as satisfactory. None of the participants rated the content as bad.
- Training methodology: 53.25% of participants reported training methodology "very good" and 40.24% (130) rated it as "good".
- Overall rating of the training: The participants rated the full training session on a scale of 1 to 10 and, 61% participants rated the training between 9 to 10 marks; 8 participants rated between 5 or 6 marks. None of the participants ranked it below 5.

An open session was organized at the end of the session in all the districts. Most of the participants found the training useful and felt that there should be more frequency to improve understanding. BTRT members suggested coupling of theoretical classroom lectures with field-based demonstration

at MGNREGS worksites. Some of the main suggestions and comments are as follows:

- The technical training should be of longer duration (2-3 days) with field work and at regular intervals.
- The demonstration of designing using Google Earth Pro could be done at an MGNREGS work site. The Geotagging method, use of Bhuvan software topics could be included in the technical training.
- Some additional topics like technical estimation of MGNREGS, Schedule of Rates, MIS and livelihood options could be included.
- Some more time to be spent on mathematical calculation of water flow, calculation exercise-based tools. Also, some were interested in Civil engineering and material works estimation.

The fact that trainings were done in the non-ICRG districts helped create awareness on the ICRG approach. The trainings were well received by the state and received media coverage.

3.2 Chhattisgarh

The focus of the training programmes in Chhattisgarh has been on the productivity and durability of NRM assets listed in MGNREGA by integration of parameters of climate resilience in selection and design of the works. As a stakeholder of Capacity building on INRM in the state, the ICRG team contributed in the Saksham program from state to Block level mainly in the following aspects:

- Planning and coordination for rolling out DTRT and BTRT
- Developed presentation as learning tool for DTRT/BTRT members
- Included sessions on Climate Resilient Works and Climate resilience perspective
- Coordination of training programs of DTRT at the State level
- Extended support in Coordination of Training program of BTRT in 9 Districts
- Conducted sessions as STRT and DTRT
- Supported in compiling report of DTRT and BTRT
- Follow up training and Hand holding support in preparation of DPR of NRM works in 9 ICRG district and 2 Non ICRG districts.

The details of the ICRG Teams contribution at different levels of training is discussed below.

The STRT training covered 23 functionaries following which, the state government prepared an intensive plan to complete the DTRT and BTRT trainings. All the blocks of the state were divided into three different categories as per the Mission Water Conservation (MWC) classification.

S.N.	Particulars	Details	Remarks
1	Numbers of total Districts in the State	27	03 Agro-climatic zones: 1. N Hills zone 2. Central Plain zone 3. Bastar Plateau zone
2	Number of Districts with MWC Blocks	13	
3	Number of all Blocks	146	
4	Number of MWC Blocks	72	
5	Number of Irrigation deprived blocks	70	Critical Blocks-Dhamtari, Baramkela (Raigarh)
6	Number of Groundwater Stressed blocks	01	Exploited Block-Balod

3.2.1 DTRT Training

321 District level officials were selected and trained as DTRT members in five batches at the State Institute for Rural Development (SIRD) in Raipur. The state government had nominated 9 ICRG District Engineers placed under the project as District Resource Persons and they were trained with the others. The main objective of the training was to enable the ground level implementation staff enhance their abilities to undertake technology assisted INRM planning at GP level. The ICRG state Team assisted the state government in coordinating and organizing the DTRT training.

18 non-ICRG districts were covered in 20 batches and 192 people were trained. In 9 ICRG districts 129 people participated in 9 batches. The DTRT training programme was completed in 5 batches for a total of 405 participants with each batch having an average of 81 participants. Participants who were absent for one day were not considered in the final count of the number of participants and their names deleted from the Participants list.

Districts	Total number of batches	Total number of participants
ICRG districts – 9	5	129
Non- ICRG districts - 18		192
27 Districts		321

Members of the ICRG Team trained in the STRT session further led 7 to 10 sessions in each of the DTRT batches on the following topics:

- Introduction to ICRG and MGNREGA in the context of MWC - participants were informed about the objectives of ICRG programme, the types of NRM structures that were constructed in the last five years and the percentage of expenditure on NRM works with respect to total expenditure.
- Use of Mobile based Composite Landscape Assessment and Restoration Tool (CLART) App.
- Planning and identification of NRM structures - The participants were asked to develop cluster model approach and methodology to prioritize and select NRM works to address high vulnerabilities in the intervention areas.
- Water budgeting and hydrogeology - basic principles of hydrogeology and its influence in watershed planning were shared. Basic water budgeting for a GP was demonstrated.
- DPR Preparation - GIS applications in planning of the soil and water conservation works were presented. The participants through Bhuvan portal, Google earth pro were given a synoptic view of the target area and possible works for programme interventions. The participants were assigned to prepare one DPR for a selected GP on demo basis, with the help of GIS tools.

It was expected that at the end of the DTRT Training Programme, participants should be able to do the following independently:

- To delineate watershed boundary in a GP;
- To collect all the required data of the GP in the prescribed format;
- To calculate ground water recharge potential of the area under the GP;
- To prepare the water budget for GP;
- To prepare the INRM based plan of the GP with the help of GIS tools; and

- Finalize the DPR of the GP based on INRM principles.

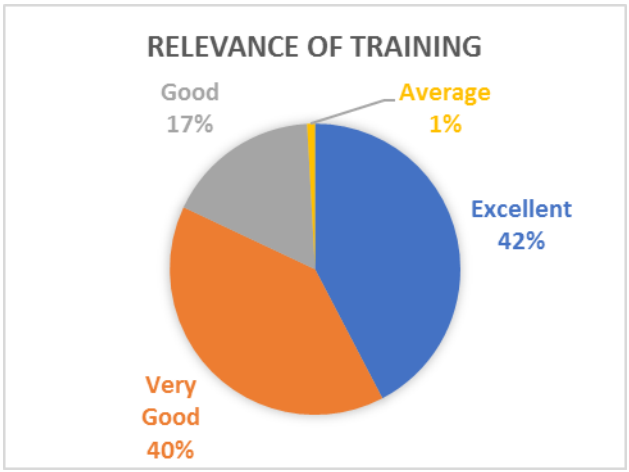
3.2.2 BTRT training

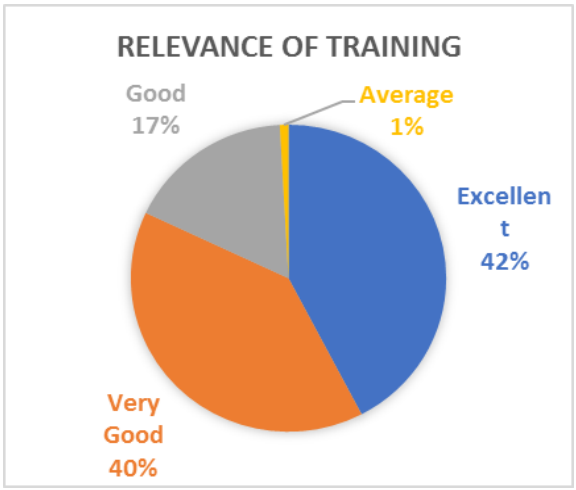
The State Level Engineer placed in the SIRD in Raipur and the District Engineers both under ICRG led the coordination of the BTRT training in the state. The State Level Engineer was responsible for coordination in the non-ICRG districts while the District Level Engineers in the 9 ICRG districts led in the project districts. The trainings were conducted in the Zila Panchayats of the district and covered all the topics as under the DTRT. Each member of the BTRT such as Sub-Engineers, TA and Field staff of districts and blocks were trained on planning for INRM approach through GIS based applications and Google Earth pro, Bhuvan portal. The mobile based CLART App data was provided to the BTRT members as well as other field staffs along with GIS layers data for day to day implementation of MGNREGA work. The details of the number of batches and participants is as given in the table below.

Districts	Total number of batches	Total number of participants
ICRG districts – 9	11	936
Non- ICRG districts - 18	21	1276
27 Districts	32	2212

Participants feedback and suggestions on the BTRT Training

Feedback was collected from 745 participants in 7 ICRG districts as per the prescribed format. Out of the total participants 174 were female participants. The feedback of the workshop is collected in five rating scale Needs Improvement; average; Good; Very Good; Excellent





*0% - "Need improvement" have been removed from the graph

- 82 % of the participants felt that the training was excellent or very good. 78% of the participants rated training content excellent or very good and 77% rated training methods very good or excellent.
- 75% rated over all training experience very good or excellent.
- During open discussion and for open ended questions participants shared that following feedback:
  - The materials should be provided in vernacular
  - Inclusion of farming systems
  - Live demonstration models on NRM structures for proper visualization
  - Need for training programme on the validation on the selection for different kinds of water conservation structures through CLART app.

- Regular use of basic survey equipments by BFTs such as A-frame and hydrometer.

Some other suggestions given by the participants were:

- The materials should be provided in vernacular
- Inclusion of farming systems
- Live demonstration models on NRM structures for proper visualization
- Need for training programme on the validation on the selection for different kinds of water conservation structures through CLART app.
- Regular use of basic survey equipment by BFTs such as A-frame & hydrometer.

3.2.3 Follow up training and Handholding support by ICRG team

At the request of the district administration, the ICRG state team provided training to Technical Assistants on DPR preparation as a follow up support to BTRT members. Such trainings were organized in 4 program Districts; Jashpur, Mungeli, Bilaspur and Kabeerdham. In addition, District Engineers of ICRG provided additional DPR training in Koria, Surajpur and Rajandgaon. In collaboration with FES, State MICR Engineers supported two districts in preparation of DPR with the help of CLART app. The ICRG state Team supported preparation of 465 DPRs.

Sr. No	District	Number of DPRs supported
1	Bilaspur	70
2	Jashpur	80
3	Surajpur	50
4	Koria	110
5	Korba (With FES using CLART app)	25
6	Kabeerdham	40
7	Mungeli	30
8	Rajanadgaon	35
9	Gariyanband (Non ICRG) with FES using CLART app	25
	Total Districts supported - 9	**DPRs supported - 465**

3.2.4 Suggestions for improvement of DTRT-BTRT program

All the Technical Functionaries of MGNREGA in the state were covered under the Saksham trainings over a period of 4 months. Technical functionaries of line departments were also covered. However, the quality of training programs did not sustain during roll out from state to district. DTRT members had to perform their regular tasks and were not able to give enough time to prepare and conduct the training. The lack of learning tools was a limiting factor especially at the BTRT level. Some suggestions for improvement are given below:

- Learning tool kit including power point presentation, models, posters, exercises and field work should be developed for BTRT training and DTRT members should be trained on use of these tools through Training of Trainer Programs.
- Only two levels of training should be organized – STRT and BTRT. This will help in minimizing the communication loss and ensuring quality training. Best performing members of DTRT should be merged with STRT.
- Protocol should be developed and followed for BTRT on aspects like trainer, venue, training aid, field visit and output. Trainers should be excused from their regular duties during training.
- A third party, professional organization can be hired to coordinate, monitoring, reporting and analyzing the output. At present SIRD is playing this role, but they need extra man power with the appropriate skills to perform this role effectively.
- The entire sequence of training should not be completed earlier than 1 month prior to the Labour Budget preparation so that new skills can be integrated in Labour Budget cycle.

3.3 Odisha

The Saksham training focused on technical aspects of MGNREGS planning but did not include the climate change perspective. In Odisha, the ICRG team focused on inclusion of this aspect in MGNREGS planning. It was felt that the technical functionaries of MGNREGS and line department officials at all level needed training on site selection, planning, design, and DPR preparation under MGNREGS. There was a need to understand the concept of climate change and its link to MGNREGS. The team shared the climate modeling study findings, vulnerability assessment findings, processes of climate resilient works design and planning. During the training the focus was on;

- Promoting knowledge and awareness on climate change, climate vulnerability and its linkage to MGNREGS
- Understand the Climate Modelling study and Vulnerability Assessment study.
- Climate resilient works site selection, technical designs and estimate preparation and execution.
- Understand the process of DPR preparation and its usage.

3.3.1 Preparatory phase for Saksham

Prior to the training program in the state and districts, the state team and district team made the following preparations:

Developing resource materials

The Team studied, reviewed and analyzed available resource materials and data and thereafter prepared an outline of the training. Consultations were also done with other organizations for

development of modules based on wider suggestions and ideas. The consultations were done with the following:

- With Executive Engineers (EE) of ICRG districts.
- With the thematic experts and engineers of MGNREG Odisha Society
- With organization like ICAR-CIWA, IIWM, OLM
- With line department officials from Water Resources, Watershed, Horticulture, and Forest Departments

The following resource materials were then developed:

- Note on the Climate Modeling study by the Indian Institute of Science, Bangalore.
- Note on the Vulnerability Assessment by Ricardo Energy, UK.
- Presentations for major sessions; (a) ICRG, Climate change and linkages with MGNREGS (b) Climate Modeling study and Vulnerability Assessment (c) Climate resilient work planning, design and execution (d) Process of DPR preparation (e) Understand and use of google.
- A case study on Environmental benefits and vulnerability reduction through MGNREGA scheme was discussed.

Session Plan for "SAKSHAM" Training for DTRTs & BTRTs.

Following session plan was followed in the training:

DAY 1	
Duration	**Topics**
9:30AM to 9:45 AM	Registration
9:45 to 10:30 AM	Inauguration
10:30 to 11:30 AM	Need and Objective of training followed by video show and overall discussion on SAKHYAM
11:30 AM to 12:30 PM	ICRG Programme, Climate change and linkages with MGNREGS
12:30 PM to 1:30 PM	Rain water Harvesting, water conservation, Artificial recharge,
2:15 PM to 3:15 PM	Arable and Non-Arable land, RWH, WC & AR
3:15PM to 4:15 PM	Concept, planning, intervention,
4:15 PM to 5:15PM	Scope of watershed, need of Watershed
DAY 2	
10:30AM to 11:30AM	Presentation on Climate Modelling study and Vulnerability Assessment process and key findings.
11:30 AM to 12:30 PM	Introduction to command area and command area.
12:30 PM to 1:30 PM	Intervention farm development in command area
1.30 PM- to 2.15 PM	Lunch Break
2:15 PM to 3:15 PM	Land levelling and land shaping
3:15PM to 4:15 PM	Surface drainage system, sub surface drainage system
4:15 PM to 5:45PM	Bhuvan software and Google earth introduction along with other map for planning.
10:30AM to 11:30AM	Nursery techniques, Afforestation
11:30 AM to 12:30 PM	Plantation, Dry land agriculture
12:30 PM to 1:30 PM	Watershed solution
1.30 PM- to 2.15 PM	Lunch Break
2:15 PM to 3:15 PM	Video documentation on watershed

3:15PM to 4:15 PM	Why drainage system is necessary, what are the useful structures.
4:15 PM to 5:15PM	Video documentation on Bhuvan for concept clearing.
DAY 4	
10:30AM to 11:30AM	Impact of watershed & Basic Hydrology concept
11:30 AM to 12:30 PM	Useful structures for Rain water harvesting structure along with calculation
12:30 PM to 1:30 PM	Framework of INRM plan document
1.30 PM- to 2.15 PM	Lunch Break
2:15 PM to 3:15 PM	Essential statistical information INRM planning
3:15PM to 4:30 PM	Useful structures for water conservation structure along with calculation and Discussion about calculation of various water structure.
4:30 PM to 5:15PM	Understanding the need and process of Detailed Project Report (DPR) preparation
DAY 5	
10:30AM to 11:30AM	Video documentation on Nursery techniques, Different types of plantation
11: 30AM to 12:30 PM	Application of geo-informatics tools for GP level
12:30 PM to 1:30 PM	INRM plan for MWC under MGNREGA
1.30 PM- to 2.15 PM	Lunch Break
2:15 PM to 3:45 PM	Climate Resilient Works design, drawing and estimation.
3:45 PM to 4:25 PM	Water conveyance system and drainage system
4.25 PM to 5:45 PM	Discussion on total topics from day-1 to Day-5 and questionnaires session

Profile of the trainers and trainee

The ICRG State team and district engineers carried out the sessions. The profile of the trainees of the BTRT and DTRT are as follows

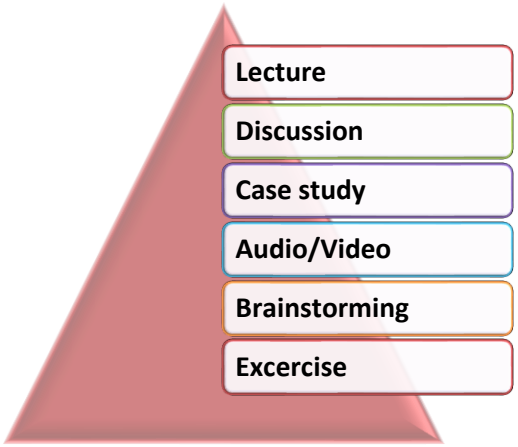
For DTRT	For BTRT
• Executive Engineers, DRDA. • PD, Watershed/APD, Watershed/AE Watershed. • Deputy Director, Horticulture/Additional Deputy Director, Horticulture/AE, Horticulture. • District Agriculture Officer/Thematic Expert • Assistant Executive Engineers (AAE)/Junior Engineer • District level officials of Forest department • District level officials of Sericulture department • Livelihood Expert • District level officials of Animal husbandry and fisheries department • District level officials of Minor Irrigation department • AE, ITDA	• Assistant Executive Engineers (AEE) • Assistant Engineer (AE) • Junior Engineer (JE) • AE Watershed • PIA, Watershed • Divisional Forest Officer or Representative of their office. • Deputy Director Horticulture (DDH) • Additional Deputy Director, Horticulture (ADH) • District Agriculture Officer (DDA) and Assistant Agriculture Officer (AAO). • Additional Sericulture Officer (ADS). • PA, ITDA or other designated officers from

- 5 day (40 hours) for whole training and 5 hours for ICRG session during training.
- 40-50 participants were covered in each batch of the training

District	District level SAKSHAM (BTRTs training)	State level SAKSHAM (DTRTs training)
Balangir	90	10
Kalahandi	100	7
Naupada	42	8
Keonjhar	150	10
Mayurbhanj	138	16
TOTAL	**520 for 5 ICRG district and 305 of 35 ICRG block.**	**275 for all 30 District and 51 for ICRG district**

Training Methodology

Training was imparted using multiple methods - presentation to case study, video etc. To make the discussions more effective, some interesting short videos were also shown to the participants. The convergence processes developed in other states to link the MGNREGS works to livelihoods were discussed in more detail. The climate change scenario and its impact in other parts of the world were also discussed in the training.



Learning outcomes expected

The expected learning outcomes were as follows:

- Learn and use of climate vulnerability study and vulnerability assessment data in the MGNREGS planning and design.
- Importance of CRWs, site selection process, basic technical aspects of watershed approach and treatment, design modification and estimates.
- Understand the importance of taking up integrated approach while identifying MGNREGS works, convergence with other schemes to link to livelihoods, inclusion of vulnerable groups etc.
- Understand ICRG Programme, its strategies to take up CRWs, convergence with other schemes and how the approaches are going to make the MGNREGS works durable and climate resilient in long run.
- Possibility of taking up MGNREGS works in a climate change perspective.

3.3.2 The training of DTRT and BTRT

The half day state level and district level trainings were inaugurated by Director Special Project at State level and Collector and PD, DRDA at district level. Then Executive Engineer, DRDA briefly discussed on the need for the training, the objective of the training and session outline, The details of the topics covered in the training were as followed:

- MWC & MGNREGS
- Concept of Watershed
- Basic Hydrogeology
- Runoff & Groundwater Resource Estimation

- Rainwater Harvesting, Water conservation & Artificial Recharge
- Intervention in Arable & Non-Arable Land
- Impact Assessment & Runoff calculation
- Drainage line & Drainage line structure
- Plantation, Afforestation & Dry Land Horticulture
- INRM and planning
- Framework for INRM Planning
- Water Conveyance System & Irrigation Structure
- Remote Sensing Space Based Input (BHUVAN)
- Application for Geo-Information tools.

The methodology used for the ICRG training session was;

- Handouts distributed
- Four sessions with 4 sets of presentation
- One case study
- Group discussion

Sessions

- **Session 1**- Understanding climate change and linkage with MGNREGS - At the beginning of the session handouts were circulated among the participants. The content covered the ICRG programme, concept of climate change, key criteria for selection of sites and a case study on MGNREGS and climate change. The ICRG programme was introduced through a presentation - its concept, objectives and outcome along with introduction of various partners, stake holder and their specific roles and responsibilities in the projects along with project districts and blocks are displayed.
- **Session-2**: Climate Modeling Study and Vulnerability Assessment - A presentation was made on climate variability and also focused on the kind of livelihoods interventions that could be taken or contingency plan prepared for farmers to cope with climate change impacts. For example – drought resistance variety, short duration or long duration, changing of cropping pattern, diversified livelihoods etc. MGNREGA toolkit for each block was shown to them to prioritize work under MGNREGA.

Figure 1: ICRG team imparting DTRT training at SIRD, Odisha

- **Session-3**: Climate resilience works and its design – this session discussed about making MGNREGA works climate resilient. Brief descriptions of climate resilient works taken under ICRG project were presented. The core works and supporting works were described. Innovation and modification in the design were discussed.
- **Session-4**: Need and Process of DPR preparation - The presentation focused on detailed description of all design layouts of the selected works for clear understanding of how the

selected MGNREGs were more climate proofed based on the agro-climatic & socio-economic data. Discussion was held on the cost estimation for every Climate Resilient works (CRWs) and the list of possible convergence plans with projected estimation.

- **Session-5**: Proper INRM planning - different maps required and their application, how the maps could be generated from the Bhuvan site for INRM planning under MGNRREGS during labour budget preparation. Discussions were held on the different maps used for planning. It was discussed that the maps generated from the BHUVAN software could help in understating the type of soil without soil test.

There were discussions on Google earth and how to use it for catchment area calculation, length of every structure, command area calculation, slope calculation, contour line and how to calculate the area of the water structure etc. Detailed discussions were held on how to superimpose panchayat boundary, cadastral boundary on Google earth.

Learning Recommendations and feedback

The key learnings from the DTRT and BTRTs are as follows:

- The participants appreciated the Climate Modeling Study and Vulnerability Assessment findings and their use in MGNREGS planning. It was felt that there is need for creation of such type of data at village level for proper planning of various programmes.
- Participants understand the need of DPR preparation and requested the ICRG team to share a sample DPR along with design to blocks and line department.
- Different technical staff (EEs, AEEs, AEs, JEs, GPTAs and Line department's technical staff) had participated in the training programme. The participants requested for exposure visit to good practices.
- Given the fact that participants from various grades attended the trainings together, levels of understanding varied. Hence it was suggested that trainings should be organized at different levels at district level.
- The Line Department officials suggested that the ICRG team provide detailed structure on specific role of each line department in execution of CRWs plan for execution in the field.
- It was also suggested that the Climate Modelling and Vulnerability Assessment should be done for the whole state for better understanding of the climatic scenario and improved interventions to reshape the MGNREGS implementation.