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TRAINING MODULE FOR VILLAGE LEADERS TRAINING ON CLIMATE CHANGE

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ABSTRACT

Pilot training programs were conducted in Odisha for Village Leaders of the respective villages to test the effectiveness of draft training modules on climate change adaptation. The pilot tested training modules include people leaders at village level. The trainees were evaluated before and after the pilot training programs and their evaluation results were taken into consideration in modifying the training modules. The results are discussed and evaluated.

INTRODUCTION

The attention paid to improving public awareness and integrating the concepts of climate change adaption and mitigation of greenhouse gases (GHG) into sectoral and national sustainable development plans are becoming important concerns internationally and for Odisha. Climate change is an emerging concern for environment and for development. Both software and hardware of addressing climate change issues are of critical importance for better adaptation to climate variability and change that continue to threaten Odisha. As a developing agrarian state, Odisha is highly vulnerable to climate change and has been categorized as having relatively low adaptive capacity to changing climate conditions compared to other Southwest Asian countries and thus is highly vulnerable to climate extremes. Most households in Odisha are engaged in agriculture. Rice is the main crop in Odisha. Although the agricultural productivity has increased during the last decade, it is still lower in Odisha compared to neighboring states. In recent years, Odisha has witnessed more frequent and severe floods and droughts which have resulted in a significant impact to agriculture and other development sectors with considerable economic loss. In rural areas, the challenges caused by negative impacts from environmental changes are further intensified by the increasing population coupled with unavailability of agricultural land. More than half

of Odisha's rural population depends on fish and aquatic resources for a significant proportion of their livelihood. Together with rice, fisheries form the backbone of the state's food security and provide invaluable revenue and employment (direct and indirect for over 0.6 million in Malkangiri, Odisha). Besides agriculture, fisheries and forest resources play a critical role in supporting livelihoods, especially in providing diversifying subsistence and income-generating activities. Hence, significant amount of efforts are required for capacity building of all ranking official on climate change adaptation, especially to official of agricultural forestry and fisheries, as they directly work with farmers for disseminating agro-technologies and improving their livelihoods.

Objectives

The objectives of the project are

- To pilot test and evaluate two training modules developed during the first phase of the project; and
- To modify the training modules according to the evaluation results.

Methodology

Training needs assessment (First phase of the project) Training Needs Assessment in Malkangiri, Odisha was conducted by a three-step process in the first phase of the project. A set of

questionnaires developed by the Institute for Global Environmental Strategies was used for conducting training needs assessment (TNA) surveys. Data was collected from key informant PDA staff at district and commune level and Developmental staff at district level of the SC & ST development department, Odisha. Two target groups whose work is related to climate change and agriculture sector were selected for the study. The group division basically depended on the role and responsibility of each concerned institution. The two main target groups are: (i) the concerned trainer's institutions and (ii) trainee's institutions. The first group consisted of all the line departments of the district as well as the staff of Vikash. Subsequently, the team has reviewed training modules, materials and documents (such as workshops and training reports, personnel profiles etc.) related to TNA maters of different training institutions. The findings of the review process were eventually discussed in training needs assessment meetings conducted by Vikash in Malkangiri. A set of survey forms developed by Vikash was employed for understanding the knowledge and skill gaps among the agriculture officers. These results were used for drafting the training modules.

Pilot testing of training modules

Some of the above developed modules were subsequently pilot tested after prioritizing training modules for two levels of agriculture officers: 'Village level leaders at district level' and 'District level officers'. Pre-training and post-training evaluation was conducted through administering a questionnaire consisting of open ended and multiple choice questions to test the knowledge of the trainee on climate change adaptation. Same procedures were followed for pre and post-training test. The results of these test sheets were analyzed in Excel and results are presented as pre- and post-training performance. The difference in responses before and after the training constituted the training effectiveness. The opinion of trainees were considered in various aspects of training such as course content, duration and method of delivery and necessary changes were made in the training modules. The final modules are presented in this report.

PILOT TRAINING EVALUATION RESULTS

District level Officers Training sessions on climate change adaptation for extension officers in agriculture sector were held at the Bonda Hills from 25 to 27 May 2022. The trainees from Malkangiri district were chosen to continue training other extension officers at district levels between 30 May 2022 and 01 June 2022, at the State Department of Agriculture on the

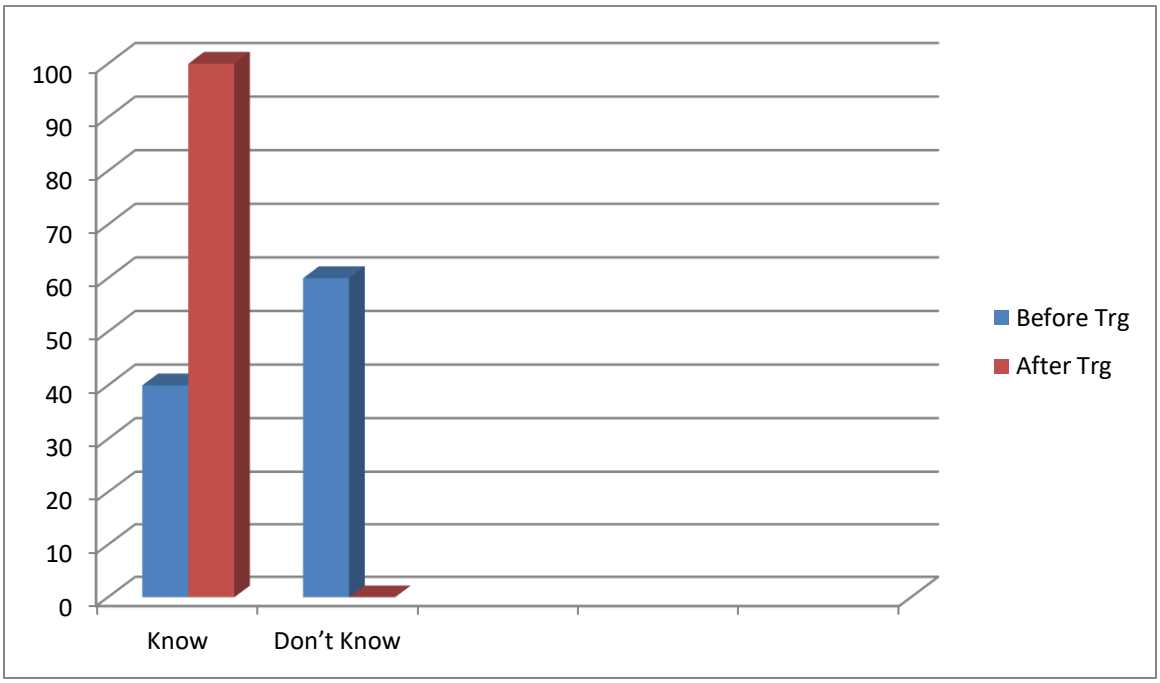
topic of climate change adaptation in agriculture sector, particularly in rice production. The aim of the training was to enhance the capacities at district levels to gain an understanding of climate change and to modify training modules based on their feedback.

A total of 15 participants have attended the training; 8 male and 7 female village leaders at village and district levels working in the landscapes of malkangiri. Most are in the age group of 36-45 years followed by 46-55 years. Most of the trainees were responsible for training and extension on farming techniques to farmers (55% were head of office and have been working in that position for 11-15 years, Figure 2), including techniques for rice intensification, vegetable farming, growing forage, animal raising, and promotion of heat tolerant rice varieties introduced by the Ministry of Agriculture, Forestry and Fisheries.

General understanding on climate change

The trainees have answered the question of whether they know climate change It can be seen that the training has made significant change in their knowledge as reflected in terms of percent of responses. Before the training, 6 participants, accounting for 40%, said they knew about climate change and 60% reported as not knowing about the issue. After the training, all participants have reported that they know about it. Table 2 shows the distribution of responses on what the

trainees thought the climate change is. Most pre-training knowledge on climate change and adaptation came to the trainees from radio and television. When asked about the impacts of climate change, only 10 trainees were able to answer. However, after the training, they all reported the enhanced understanding on the impacts of climate change.



(Figure shows the understanding of climate change)

No	Answer	No of Participants Answer before training	No of participants answer after training
1	Climate change is changes in	**2**	**5**

	seasons from cold to warm or from warm to cold		
2	Climate change is increasing heat, stormy weather and irregular flooding	2	4
3	This issue refers to volatility of heat, extreme cold weather and abnormal natural disasters	1	11
4	Changing weather patterns are conversion of nature	0	2
5	Climate change is caused by nature and human activities that	0	4

	lead to global warming, rising sea level, storms, severe drought and flooding		
6	Climate change increases global warming because of increasing GHG emissions	0	3

Climate change consequences

Before the training, only one trainee specified the answer that climate change deprives animals of water and food. The trainees were also asked to elicit a list of factors contributing to climate change. In the pre-training evaluation, most have 7 Training Modules for Climate Change Adaptation in Agriculture: District Level Agriculture Officers of Malkangiri attributed the cause to loss of forests. After the training, the responses were evenly spread to include other factors such as industrial and transportation related emissions indicating a change in their knowledge on the subject Before the training, 4 trainees were unable to answer the question on causes of climate change, but

after the training all of them understood this issue and could able to answer.

Consequences on Climate Change

No	Answers	No of Answers before training	No of answers after training
1	Loss of forests	0	3
2	Increasing GHG emissions	0	4
3	Emissions from industrial factories	0	0
4	Growing number of vehicles	0	2
5	Use of chemical substances and fertilizer	0	0
6	Shallow rivers	5	8
7	Car exhaust	0	0
8	Drought, flooding and pest	0	3
9	Gas emissions from farming practices	0	2
10	Burning fossil fuels	0	2

Final Training Modules

Modifications made after evaluation.

I. Module one According to the detailed report and evaluation of the training module on adaptation to climate change in agriculture sector for extension officers at provincial level, some adjustment have been made in the content and pedagogical methods. 1. Teaching methods in the content, Introduction to Climate Change and Global Warming, has been slightly changed by showing two video clips. The original methodology was “lecture and question-answer sessions” which was changed to a combination of lecture, VCD (Documentary on climate change and UNEP Climate change) and question and answers. 2. Part of the content titled “Adaptation options in water resources management and adaptation options in soil conservation and management” was primarily separated. After the training, it was observed that these cannot be separated since the soil conservation and management is closely related to that of water resources management. Hence, these two sub-contents were suggested to be combined into “Adaptation options in water resources management and soil conservation and management.” 3. The case study on

climate change vulnerability, impact assessment and adaptation was not prepared and hence it was suggested to be excluded from the standard module. However, it was suggested that the module should be brought back when a suitable case study is prepared for training purposes. 4. Because of the limited budget, the field visits and on-site studies to test demonstration plots in the module of “Adaptation options in soil conservation and management and in crop production” were not implemented but kept for another training program in case of sufficient funds are made available. II. Module two Similar to the previous training module, minor adjustments were made in the content and methodology of the second module. 1. Teaching methods in the session on ‘Introduction to Climate Change and Global Warming’ has been changed by showing two video clips. The original methodology included lecture and question-answer sessions. The modified delivery method included lecture in combination with showing VCDs (Documentary on climate change and UNEP Climate change) followed by question and answers. 2. The case study on “Adaptation technology for agriculture” was not included in the training since no useful case studies were found in Cambodia and case studies from other counties were

not found to be suitable for the context of Cambodia. Thus, the trainers had to demonstrate adaptation options in crop production and animal production which unnecessarily overlapped with the previous module. Training Modules for Climate Change Adaptation in Agriculture: District Level Agriculture Officers of Malkangiri. The content and methodology in this module was kept for later use in the event of particular research into adaptation technology in agriculture is made available which will be useful for all levels of extension officers. 3. Due to the limited budget, field visits “Impacts of climate change on agriculture (crop, animal, and fish production) and integrate farming systems adapted to climate change” were not implemented. However, these sessions should be implemented if sufficient funds are available. In short, these two trainings were extremely important to build the capacities of extension officers at commune, district, and provincial levels, in order to make them understand climate change, its impacts on agriculture sector and build the capacity to adapt. This experience can be disseminated to other officers in order to implement government’s policies in reaching a targeted rice export of one million tons by 2024.

In-service Training Module on Climate Change

Adaptation for Village level leaders at District and Commune Level

INTRODUCTION

II. Most Malkangiri households are engaged in agriculture. The main agriculture commodity in Malkangiri is rice. Research has clearly indicated that the frequency and intensity of droughts and floods may increase with changing climate and can cause severe damage to rice production. Successive droughts and floods have resulted in a significant number of fatalities and considerable economic losses. Floods have accounted for 70% of rice production losses between 1998 and 2002, while drought accounted for 20% of losses. In 2010, Malkangiri was affected by a severe drought that has severely impacted the agriculture production and human wellbeing. Therefore, the staff who works in agricultural sector, especially those who work directly with farmers, need to have the knowledge and understanding on the impact of climate change on agriculture and adaptation to climate change in agriculture sector in order to be able to help the farmer to mitigate the adverse impacts of climate change.

TARGET GROUP

Village level Leaders

ENTRY BEHAVIOUR

The age of participants/trainees is not limited. The participants are not based on the education background; everyone who works on agriculture or related sector can attends this training course. The trainers should hold the educational background from university degrees related to climate change and have experience in agriculture practices.

IMPLEMENTATION MODALITIES

The number of trainees should be 30 and there should be at least 2 trainers per course. Duration of training is 20 hours. For conducting the training module the conducting institute should collaborate with other training institutions such as Odisha University of Agriculture & technology, Department of Agriculture Extension and State Agricultural Department. The training facilities required are LCD, Laptop, Multi-media, Study site, mean of transportation, Poster/leaflet, Flipchart, marker and sticker for recording.

EXPECTED OUTCOMES

The trainees will obtain knowledge on climate change adaptation and mitigation in agriculture and be able to help farmers to mitigate the impacts in agriculture.

EVALUATION

The trainer will conduct the pre- and post-training evaluation by using simple questions on climate change adaptation and mitigation. During the session the trainers should ask questions and conduct short oral exam.

Title of the module	Climate change adaptation in agricultural sector
Target trainees/ Participants	Agriculture extension staffs at district level
Responsibility of the participants after training (they are expected to do what)	The responsibility of the participants: • Provide training to district level staff and to the farmers. • Conduct practical work with farmers
Duration of the module	20 hours

SN	Enabling Objectives	Contents	Methods	Duration	Resources Used	Methods of Learning	Note by module Designer
1	The session will enable the participants to develop possible adaptation options in agriculture sector	Adaptation options in Soil Conservation and water resources management	• Lecture • Group Discussion • Field Visit	6hours	Reading Documents, LCD, Computer	Ask Questions	The trainer have to focus more on water use in agriculture
		Adaptation options in crop production	• On site study to see the demonstration plot	4 hours	Means of transportation	Ask Questions	
		Adaptation options in Animal Production	• Mini Lecture • Small group Discussion	2 Hours	Means of Transportation	Ask Question	
2	The agricultural extension officials will understand the concept,	Introduction to climate change and global warming	• Lecture • Documentary • Q&A upon Climate change • Feedback	2hours	Multimedia, Internet, Reading Documents, LCD, Computer	Testing using short questionnaire	

	knowledge of climate change and climate change	Human response to climate change policies	• Presentation • Panel discussion and reflection	1hour 30 mins	Leaflets, Reading Documents, LCD, Computer	Testing using short questionnaire	
		Climate change mitigation	• Mini Lecture • Case Study • Group Discussion	2 hours	Flipchart, Marker and sticker for recording	Pre test Post Test	
		Climate change vulnerability impact assessment and adaptation	• Lecture • Q&A	2 hours	Multimedia, LCD, Computer, Flipchart, Marker	Exercise	The trainer should highline the water and agricultural sector