ITEC Training Programme on

"Climate Resilient Agriculture for Extension Professionals– Indian Experience"

Rationale and Justification of the Programme

Climate change alters the production systems, thereby threatening the food security of the billions of population across the globe. It would be a threat to the livelihood of 2.6 million of the global population as their income source is directly dependent on agriculture and allied activities (Dickie et al, 2014). The presence of Greenhouse gases in the atmosphere and their variations are the major cause of climate change. India's share of GHG emissions to the total emission of the world is about 6.55 %, thereby becoming the third largest GHG emitter in the world. India may have to face a loss of 2.5 % GDP by 2050 due to climate change. Similarly, climate change induced yield loss was estimated to be 4.5 to 9 % in India, which will lead to a loss of 1.5 % of GDP on an annual basis (Vijayan and Viswanathan, 2018). In India, the loss of productivity and increase in food price are the two extremities of climate change, which might push about 42 million population additionally into the poverty trap and cause a 0.4 % loss in overall consumption rates. In order to address the risks of climate change, India is taking many policy and programmatic interventions. Importantly, India's Intended Nationally Determined Contributions (INDCs) is to reduce the emissions intensity of GDP to 33–35% by 2030 for the period 2021 to 2030 below 2005 levels and also to create an additional (cumulative) carbon sink of 2.5 to 3 billion tonnes of carbon dioxide (CO2) equivalent through additional forest and tree cover by 2030. Notably, in the recent COP26 summit held at Glasgow, 2021, India has pledged that it would adopt a net-zero emissions target by 2070. In this context, agriculture will be one of the major sectors that can also contribute to achieving net-zero emissions by adapting various suitable technologies and best agricultural practices.

Present landscape on Climate Resilient Agriculture

The Government of India has launched a National Action Plan for Climate Change (NAPCC) in 2008 with eight sub-missions to mitigate and adapt to the adverse impact of climate change. One of the missions namely the National Mission for Sustainable Agriculture (NMSA) aims at promoting sustainable agriculture to improve the adaptive capacity of farms. Also, the National Innovations in Climate Resilient Agriculture

(NICRA) was launched in 2011 as a network project of the Indian Council of Agricultural Research (ICAR) to enhance the resilience of Indian agriculture to climate change and climate vulnerability. Notably, NICRA has identified a total of 151 climate vulnerability villages and is improving the climate adaptation capacity of these villages through strategic research and technology demonstration. Further, the National Disaster Management Authority (NDMA) plays a major role in formulating the policies, plans and guidelines to prepare for unlikely disaster and post-disaster management. Further, Climate Smart Villages (CSVs) are promoted in India by CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) as a response to climate change risks. In addition to this, the climate smart agricultural projects and programmees financially supported by the World Bank such as the Tamil Nadu Irrigated Agriculture Modernization Project (TNIAM)-Tamil Nadu, Project on Climate Resilient Agriculture (PoCRA)-Maharashtra, Climate Change Knowledge Network in Indian Agriculture (CCKN-IA) project in Maharashtra, Jharkhand and Odisha are enabling the extension professionals to support the decision making of farmers to the risks of climate change. Also, the National Bank for Agriculture and Rural Development (NABARD) is providing the Adaptation Fund (AF) and Green Climate Funds (GCF) to encourage the stakeholders to implement the projects related to Climate Resilient Agriculture (CRA).

This apart, the private sectors are implementing several climate smart agricultural projects through their Corporate Social Responsibility (CSR) funds. Some of the notable CSR agricultural initiatives include the development of watersheds, development of Climate Smart Community, introduction of water and soil management technologies and practices, creation of climate smart institutions, etc. Also, social mobilization plays a major role in Climate Smart Agriculture. Institutions such as Farmers Producer Organizations, Commodity Groups, Self Help Groups etc., are contributing significantly to the adaptation. Moreover, the research institutes of public and private are involved in the development of climate resilient technologies such as resilient varieties, improved seeds, improved breeds, improved agronomic practices, development of organic amendments etc.,

India has rich experience of both public and private on in climate smart agricultural research and development as well as the implementation of climate smart agricultural projects and support services that ensure adaptation and mitigation. However,

utilization of these innovative technologies, practices and services by farmers is possible only when the extension professionals are aware of them. Therefore, to enhance their technical competencies, National Institute of Agricultural Extension Management (MANAGE), being an apex extension Organization under the Ministry of Agriculture and Farmers Welfare (MoA&FW) has created an exclusive Centre for Climate Change and Adaptation (CCA) to organize a series of capacity development programmes for extension professionals of agriculture and allied departments, scientists, private sectors, NGOs engaged in climate change and adaptation activities. In turn, the trained extension professionals will organize the training programme at their work areas among farmers to disseminate the climate smart agricultural technologies, practices and services and facilitate them in the adoption of good practices in addressing the climate change risks.

With this rich experience, MANAGE is proposed to conduct an ITEC Training Programme on "**Climate Resilient Agriculture for Extension Professionals – An Indian Experience**" to improve overall competency of extension professionals associated with climate change adaptation and mitigation activities in agriculture and allied sectors.

Aims and learning objectives

- ✓ To provide overview about the policies and programmatic interventions of India to mitigate and adapt to climate change risks.
- ✓ To inculcate the technical competency among the extension functionaries of ITEC countries on various climate resilient agricultural technologies, practices and services
- ✓ To expose the delegates to the Research and Development on climate resilient agriculture and field experience of Indian farmers.

Course duration

The duration of the course will be for two weeks duration.

Tentative Programmee Schedule

Time	Particulars
Day 1	
9.30 am – 10:00 am	Registration
10.00 am – 10:30 am	Introduction and briefing about the program
10.30 am – 10:45 am	Online Pre-training Test and Discussion
10.45 am – 11:00 am	Tea Break
11:00 am – 01:00 pm	Training Need Assessment- Group activities
1:00 pm- 2:00 pm	Lunch
2:00 pm- 3:30 pm	Icebreaking – Interactive Session
3:30 pm- 3:45 pm	Tea Break
3:45 pm -5:15 pm	Climate change impact in Agriculture – Indian experiences and Policy Initiatives
5:30 pm	Close
Day 2	
09:00 – 09:30 am	Recap Session
09:30 am – 11:15 am	Institute visit – MANAGE Campus
11:15 am – 11:30 am	Tea Break
11.30 am- 1:00 pm	Formal Inauguration of the programme
1:00 pm- 2:00 pm	Lunch
2:00 pm – 3:30 pm	Impact of climate change and Next generation climate services for smart agriculture
3:30 pm- 3:45 pm	Tea break
3:45 pm- 5:15 pm	Climate Trend Analysis and Weather based Crop Insurance as Risk Mitigation Option
5:30 pm	Close
Day 3	
09:00 – 09:30 am	Recap Session
9:30 am- 10:15 am	Integrated Watershed Management
10:15 am– 10:45 am	Tea break
11:00 am- 12:30pm	Corruption free India for a developed nation
12:30 pm- 01.00 pm	Lunch

01.00 pm- 05:30 pm	Visit to CRIDA and NTR Garden
Day 4	
9:00 am- 9:30 am	Recap session
09:30 am– 11:15 am	Integrated Farming Systems (IFS) to Minimize the Climate Induced Risk with Discussion
11.15 am- 11.30 am	Tea Break
11.30 am- 01.00 pm	IFS and Soil Health Management – Visit to PJTSAU farm
01.00 pm- 02.0 0 pm	Lunch
02.00 pm- 03.30 pm	Role of Indian Meteorological Department (IMD) on Forewarning on Climate related Extreme Events
03.30 pm-03.45 pm	Tea Break
03.45 pm- 05:00 pm	Attributes of Agricultural Extension Professionals for Serving Farmers
05:00 pm – 05:30 pm	Back at Work Plan
05:30 pm	Close
Day 5	
09:00 – 09:30 am	Recap Session
09:30– 11:00 am	Protected cultivation as climate risk adaptation option
11:15 – 11:30 am	Tea Break
11:30 am – 1:30 pm	vertical farming as climate risk adaptation option
1:30 pm – 02:30 pm	Lunch
2:30 pm – 5:00 pm	Knowledge management for climate resilient agriculture
5:30 pm	Close
Day 6	
8:30 am- 5:30 pm	Study Tour – Historical places of Hyderabad (Museum, Char Minar)
Day 7	
9:00 am- 9:30 am	Recap session
09:30 am – 11:15 am	Climate-Resilience and Profitability of Smallholder Farming Systems -Experience of Project on Climate Resilient Agriculture (PoCRA)
11.15 am- 11.30 am	Tea Break
11.30 am- 01.00 pm	Weather based Agro Advisory Services

01.00 pm- 02.00 pm	Lunch
02.00 pm- 5:30 pm	Visit to agro-metrological observatory, PJTSAU, Hyderabad
05:30 pm	Close
Day 8	
8:30 am- 5:30 pm	Visit to Ramoji Film city
Day 9	
09:00 – 09:30 AM	Recap Session
09:30 AM to 01:00 PM	Integrated Pest Management Research activities related to bio pesticides and bio control agents- Visit to NIPHM
01.00 pm- 2:00 pm	Lunch
2:00 pm – 3:30 pm	Digital advisory services in agriculture- Experience of prosoil project
03.30 pm-03.45 pm	Tea break
03.45 pm- 05:15 pm	Adaptation and Mitigation options for building Climate Resilient Agriculture in India – Experience of National Innovations in Climate Resilient Agriculture (NICRA)
05:30 pm	Close
Day 10	
09:00 – 09:30 am	Recap Session
09:30 am – 11:15 am	Climate change research on plant protection and production
11:15 am -11:30 am	Tea Break
11:30 am - 01.00 pm	Digital Agriculture under changing climate scenario
01.00 pm- 02.00 pm	Lunch
02.00 pm- 5:15 pm	Climate change related research on mandated crops of ICRISAT in dry land ecosystem - Visit to ICRISAT
05:30pm	Close
Day 11	
8:00 am- 5:00 pm	Visit to progressive farmers field
	Cultural evening
Day 12	
9:00 am- 9:30 am	Recap session

09:30 am– 11:15 am	Organic Farming – A tool for climate change adaptation
11:15 am- 11:30 am	Tea break
11:30 am- 1:00 pm	Water Management Technologies for Climate Smart Agriculture
01.00 pm- 02.00 pm	Lunch
02:00 PM – 03:30 pm	Digital Technologies for climate resilient Agriculture with focus on precision water management
03.30 pm-03.45 pm	Tea break
03.45 pm- 05:30 pm	Back at work plan
Day 13	
08:00 am – 05:00 pm	Statue of Equality, Golconda Fort
Day 14	
09:30 am – 11:15 am	Post-Training Test
11.15 am- 11.30 am	Tea Break
11.30 am- 01.00 pm	Review and Feedback of the Training Program
01.00 pm- 02.00 pm	Lunch
02.00 pm- 03.45 pm	Valedictory Program and Certificate Awards
03.45 pm	Tea Break
5:30 pm	Close

Expected outcome/Deliverables

- At the end of the training course, the extension professionals are expected to acquire knowledge on various adaptation and mitigation strategies in agriculture and allied sectors to address the climate change risks.
- The delegates gain an insight into research and field activities related to climate resilient agriculture in India.
- The delegates will understand the extension support services required to prepare farmers to the changing climate scenario to enhance the coping capacity of farmers

Eligibility criteria

- The Officials from Public/ Private/ Civil Societies in Agriculture and allied sectors associated with climate change from ITEC countries.

- Working knowledge of English is mandatory to understand the training content on Climate Resilient Agriculture.

- **Additional details to be filled:**

Educational qualifications of candidates		Graduates and Post graduates in agricultural science and allied sectors preferably associated with climate change
Work experience (required) if any		Working experience for minimum 3 years is desired in Public/ Private/ Civil Societies in Agriculture and allied sectors preferably associated with climate change
Minimum age		30 years
Maximum age		55 years
Target Group (level of participants, target ministries or dept., etc.)		Middle level Officers from Agri and allied departments, Faculty from Agri and allied University, Officials from Civil Society Organisations, Farmer producer Company preferably associated with climate change
Number of days of local trips		9 visits (tentative)
Number of days for outstation trips		NIL
Number of nights for outstation trips		NIL
Places to be visited	Educational visits	Agro-metrological observatory, Rajendranagar NIPHM, Rajendranager Visit to PJTSAU Farm, Rajendranager ICRISAT, Patencheru ICAR-CRIDA, Santoshnagar Visit to progressive farmers field
	Cultural/Heritage visits	Statue of Equality (Muchintal), Golconda Fort (Ibrahim bagh) Ramoji Film city (Abdullahpurmet) Museum (Darulshifa), Char Minar (Ghansi Bazaar), NTR Garden (Khairtabad)
Mode of transport		AC BUS
Transportation charges (approx.)		-

Accommodation charges, if hotel is required to be hired	NIL
Entry ticket charges (If any during tours and visits)	-

Course Director Details

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