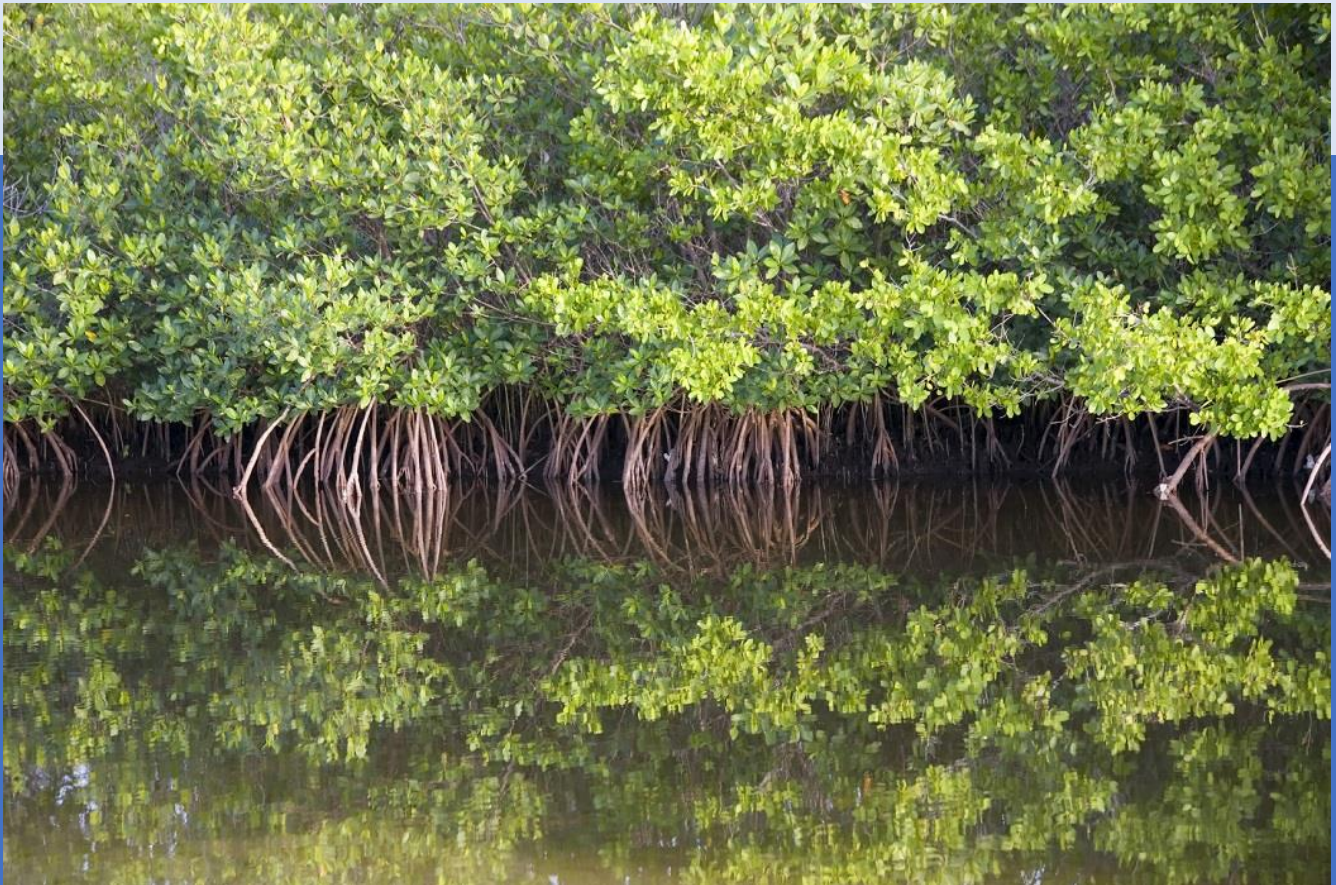




Training Report
Ecosystem based Disaster Risk Reduction (Eco-DRR)
Organized by KSDMA- January 4th & 5th 2022



KERALA STATE DISASTER MANAGEMENT AUTHORITY
&
KERALA STATE EMERGENCY OPERATIONS CENTRE

Ecosystem-based Disaster Risk Reduction (Eco-DRR) is an approach where the regulatory functions of ecosystems (such as forests, wetlands and mangroves) are systematically harnessed to mitigate, prevent, or buffer against disasters. Eco-DRR addresses both climatic and non-climatic hazards (e. g. storms, landslides, drought, etc.). Ecosystem-based solutions can provide disaster risk reduction services as well as offer other services of productive and cultural value, which also contribute to building communities' resilience to disasters and climate change impacts. Implementing Eco-DRR approaches in various departments' projects and plans will improve disaster risk reduction strategies in a sustainable manner. A training was organised for higher officials from departments and missions such as Local Self Government, Soil Survey, Mining and Geology, Irrigation, PWD, Haritha Keralam, MGNREGS, Mining and Geology, Kila, Agriculture Department, Land use board, Town and Country Planning, Local Government Institutions and Forest Department on the 4th and 5th of December 2022 at Hotel Apollo Dimora, Thiruvananthapuram. The purpose of this training is to increase awareness of the important role of ecosystem-based approaches in reducing disaster risk. It emphasises the central role of ecosystem-based disaster risk reduction (Eco-DRR) in strengthening the coherent implementation of various Government projects.

Key Objectives

- ✓ To capacitate different stakeholders on Eco-DRR at different levels and thereby mainstreaming this concept.
- ✓ To create an awareness among officials of different departments by imparting necessary technical skills for the effective integration of Eco-DRR in projects.
- ✓ Knowledge sharing and creating ideas on how to initiate and implement Eco DRR projects or activities as part of departmental plans.

Day 1: 04/01/2022

Inaugural Session

Registration of the participants as part of the Eco-DRR training programme started at 9 am. The participants, distinguished guests and resource persons gathered at the “GARNET” hall. Ms. Amrutha (Hazard Analyst, Environment) who was hosting the programme, gave a brief description of the concept of Eco DRR.



Figure 1: Registration Desk



Figure 2: Introductory remarks by Ms. Amrutha,HA



Figure 3: Inaugural Session

The Member Secretary, Kerala State Disaster Management Authority. Dr. Sriram Venkitaraman, IAS welcomed all the participants. In his welcome speech, he pointed out the importance of Land use patterns in Ecosystem based disaster risk reduction and the importance of this training. He cordially invited Sri. K. Biju IAS, Commissioner, Land Revenue for delivering presidential address.

The welcome address was followed by the presidential address by Sri. K. Biju IAS, Commissioner, Land Revenue, Govt. of Kerala. Presiding over the session, he reiterated that conservation of ecosystem is the cornerstone of Eco-DRR ventures



Figure 4: Welcome address by Dr. Sriram Venkataraman, IAS, Member Secretary



Figure 5: The Commissioner Land Revenue Dr. Biju, IAS, delivering the presidential address

Subsequently, Sri. K Rajan, Honourable Minister for Revenue and Housing, Govt. of Kerala formally inaugurated the 2-day training program and appreciated KSDMA for conducting this training program on Eco-DRR for various government departments which is relevant considering the present situation of recurring disasters in Kerala. He mentioned about the recent changes in the weather patterns and extreme events that had led to numerous disasters in Kerala and how KSDMA had functioned effortfully in response activities and also reducing risk despite the unpredictable and localised weather events. He also emphasised the importance of Disaster Literacy and mentioned Government's plan to take up disaster literacy as a priority in the coming days.



Figure 5 & 6: Honourable Revenue and Housing Minister Sri. K. Rajan delivering the inaugural



Figure 6: Keynote address by Ms.Valsala Kumari,IAS, former Principal Secretary, Disaster Management

After this, the keynote address was delivered by Dr. K B Valsala Kumari IAS (Retd.), Former Principal Secy. Revenue Dept. In her speech, she explained the difference between ecosystems and habitats and how DRR can be incorporated with ecosystem restoration and benefits of this integration. She also referred to some case studies related to

Eco DRR from the Switzerland about the afforestation done in the valleys of Alps mountains to prevent avalanche, about the protection of floodplains in the banks of Rhine River in Europe and about the mangrove forests which prevented the impact of Tsunami in Vietnam. She emphasised that to implement such Eco DRR measures in Kerala, inter departmental cooperation, capacity building for its staff, proper funding and policy changes are the key factors.



Prof. K P Sudheer, Principal Secretary S & T Department & Executive Vice President KSCSTE delivered the special address. He detailed the recent disaster history and its environmental impacts.

Figure 7: Prof. K P Sudheer, Principal Secretary S & T Department & Executive Vice President KSCSTE delivering the special address

Sri. Geromic George IAS, Joint Commissioner, Land Revenue Department, Govt. of Kerala delivered felicitations followed by vote of thanks by Sri. Aji Francis K, Senior Finance Officer, KSDMA. Before the close of inaugural session, all the distinguished guests were honoured by giving mementos.



Figure 8: Sri. Geromic George IAS, Joint Commissioner, Land Revenue Department.



Figure 9: Sri. Aji Francis K, Senior Finance Officer, KSDMA

Session 1: Eco-DRR introduction, Relevance of Eco DRR, Eco-DRR-IUCN solutions

Resource Person: Dr. Muralee Thummarukudy, UNEP

Dr. Muralee Thummarukudy is the chief of the Disaster Risk Reduction Programme of UNEP. He has over thirty years experience in the field of Disaster Risk Reduction.

In his session he began with a pointer “Disasters are always predictable and the disaster situation of Kerala may get worse in the coming years”. For better Disaster Management, we require better early warning systems and most importantly taking measures such as Ecosystem



Figure 10: Speaker - Dr. Muralee Thummarukkudy

based Disaster risk reduction in order to restore the ecosystem and also to mitigate the disasters. He shared his personal experience of becoming a disaster management expert back in 1996 and how he was able to manage an oil spill in Brunei. He further explained the importance of Eco DRR through some of the case

studies around the world. The role of socially managed forests for protection against avalanches in Afghanistan and Switzerland, how Africa is building a 15 km wide greenbelt which stretches over a distance of more than 5000 kms, how Japan changed its land use pattern to provide a 6-layer protection to the most vulnerable sections like households and schools from frequent tsunami etc where some of the examples quoted.

He was of the opinion that the concept of land being a valuable asset in Kerala needs to be changed and only then there shall be proper utilization of land and land use to implement Eco DRR. He pointed out the importance of maintaining the “Sponge city” concept to reduce the frequent urban flooding and in order to implement Ecosystem based Disaster Risk Reduction in Kerala, all engineers and elected representatives need to be given proper training on Eco DRR, Climate change and ecosystem restoration. The session was followed by lunch break.

Session 2: Government Interventions in Eco-DRR with reference to Kerala

Resource person: Sri. Suneel Pamidi IFS, Director, Directorate of Environment and Climate Change

The present director of the Environment and Climate Change Directorate. The directorate always emphasizes the importance of environment protection. The director detailed the importance of ecosystem conservation and how the concept can be implemented at the



Government level. He detailed how government departments can intervene and incorporate the NbS models in the plans and schemes.

Figure 10: Speaker - Sri. Suneel Pamidi IFS

Session 3: Eco DRR integration through Local Self Government Institutions

Resource person: Sri. Vinod Kumar. Lecturer in Rural Economics, KILA, He is the course coordinator of Eco DRR in Kerala Institute of Local Administration.



Figure 11: Speaker- Sri. Vinod Kumar

Sri. Vinod Kumar explained how the Eco DRR concept can be implemented through Local Self-Government Institutions. LSG plays an important role in the ground level implementation of disaster risk reduction programmes. Natural-based disaster risk reduction programmes are given high priority in the plans and programmes of Local Self-

Government. Each LSG can formulate different solutions based on the disaster history of that areas. He cited the examples of Eco DRR implementation through MGNREGS programmes in all panchayats of Kerala.

Group discussion

The participants were asked to form into groups to discuss the Eco DRR initiatives their departments have done and were given a form to write down their observations. The group discussion was moderated by Dr. Pratheesh C Mammen, State Coordinator, UNICEF-

KSDMA. At the end of the group discussion, everyone was given an opportunity to present their observations.



Figure 12&13: Group discussions

Day 2: 05/01/2022

Session 4 (Online): Eco DRR best practices in various countries and Scope of Eco DRR implementation in Kerala with respect to various disasters

Resource person: Dr. Sanjay Devkotta, FEED (P) Ltd

Dr. Sanjay Devkotta is an expert in the fields of DRR/Eco-DRR, CCA, geology and geo-techniques, slope stability and hydrology. He has done tremendous work in Nepal on Nature-Based Solutions.

He explained various Eco-DRR methods with respect to various ecosystems. How the Eco DRR methods can be applied to fallow lands, forest ecosystems, riverine etc. Kerala is susceptible to various hazards such as floods, landslides, and coastal erosion by considering these facts he explained with examples how the NbS techniques can be applied to address these disasters. Finally, he pointed out how these solutions can be implemented with respect to the topography and geomorphological conditions of Kerala.



Figure 14: Speaker – Dr.Sanjay Devkotta

Session 5: Hazard profile of Kerala, HVRA

Resource person: Sri. Pradeep G S, Hazard and Risk Analyst, KSEOC, KSDMA



Figure 15: Speaker – Mr.Pradeep GS

Sri. Pradeep G S explained the basics of Disaster Management starting from the difference between Hazard and Disaster. He led an interactive session explaining the various state specific disasters in Kerala such as Flood, Landslide, Coastal erosion, Soil piping, lightning etc,. He gave an overview of the functioning of the State Emergency Operations Center during an emergency and the

interventions of KSDMA during the previous disasters. He gave the participants an understanding about the various hazard zonations in Kerala using maps and also assured the departments that KSDMA is willing to share the GIS database with them on request. He also stated the importance of the Eco-DRR concept in disaster management and showcased various examples.

Session 6 (Online): Promoting Eco-DRR through agricultural practices with case studies

Resource person: Dr. Jayakumar C, Executive Director, Thanal

Dr. Jayakumar is an Environmentalist, he has been working in the field of Environment related issues from 1986 onwards. During his session he focused mainly how the environment friendly or what are the methods can be adopted in the agriculture sector to reduce the impacts of disasters ie, cultivation techniques, the crop selection and area selection etc with reference to DRR. He also explained about the need of agro-ecological system

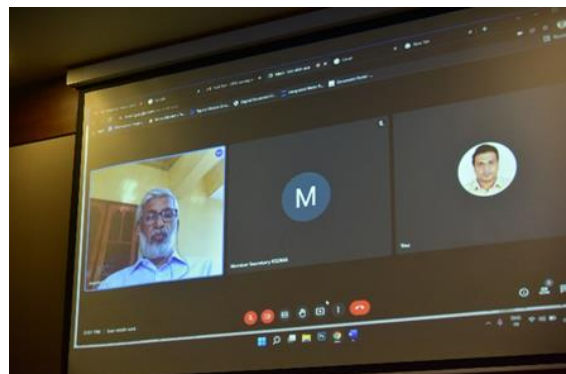


Figure 16: Dr. Jayakumar

Session 7: The concept of resilience and Eco-DRR in various ecosystems

Resource person: Dr. Pratheesh C Mammen, State Project Coordinator, UNICEF-KSDMA



Figure 17: Speaker – Dr.Pratheesh C Mammen

Dr. Pratheesh C Mammen began his presentation by briefing the topics covered till the last session and re-examining the definitions of Ecosystem, Disaster Risk reduction and Eco-DRR. He reiterated that fact that when “Ecosystem” which is not just the species or the just the abiotic environment is considered as part of the development-

Group discussion

The participants were provided with a form for filling out the suggestion on how to include Eco-DRR measures in departmental plans. One person from each department filled out their suggestions and presented the same. The opinions and suggestions of the participants were recorded. Also, the participants were provided with a feedback form about the 2-day training program.



Figure 18 & 19: Group discussions

The second day of the training program concluded after the tea around 4.30 pm.

Participants List

Sl. No.	Name	Designation	Department
1	Mr. Manmohan M	Assistant Town Planner	Town Planning
2	Mr. Sooraj T. C.	Deputy Town Planner	Town Planning
3	Mr.Sunil Kumar R	Joint Director	Agriculture Department
4	Ms. Tina Bhaskara	Deputy Director (Agriculture)	Land Use Board
5	Mr.Sreejith G H	Deputy Ex.Eng	PWD
6	Mr.Sanjeev S U	Consultant, Agriculture	Harithakeralam
7	Mr. Saji Kumar	AE	PWD
8	Mr. T P Sudhakaran	Consultant	Harithakeralam
9	Ms.Priya V P	Assistant Director Soil Conservation	Soil Conservation
10	Mr. Prasanth M J	Technical Expert	MGNREGS
11	Ms.Abhaya R J	Soil Conservation officer	Soil Conservation
12	Mr . Prakash K L	Extension Officer	Nedumangad Block Panchayath
13	Mr.Sibikumar B S	General Extension Officer	Nedumangad Block Panchayath
14	Harish Madhu S	Assistant Engineer	Irrigation Dept.
15	Mr.Subhash S	Accounts officer	LSGD
16	Ms.Sheeba Thomas	Assistant Director	Agriculture Department
17	Ms.Mini Sooryakumar	President	Munroethuruh Panchayath

18	Mr.Suneesh Kumar	Secretary	Munroethuruh Panchayath
19	Mr. V S Prasannakumar	Member	Munroethuruh Panchayath
20	Ms. Libi	Assistant Director (Soil Survey)	Land Use Board
21	Vinod Kumar	Lecturer	KLA
22	Ms. Rani S Raj	State Engineer	MGNREGS
23	Mr.Sandeep	Assistant Conservator	Forest Department
24	Ms.Drishya	KILA	KILA
25	Ms.Geethu	KILA	KILA
26	Mr.Binun Vaheed	Joint Director	LSGD
27	Sanju S	Lecturer	Susthira
28	Aji Francis	SFO	KSDMA
29	Aswathy S Nair	Agriculture Specialist	KSDMA
30	Lekshmi V	Hydrologist	KSDMA
31	Alfred Johny	HA	KSDMA
32	Neethu V Thomas	HA	KSDMA
33	Praveen P u	Data Entry Operator	KSDMA
34	Athira V M	MTO	KSDMA
35	Fahad Marzook	HA	KSDMA
36	Sriram	LSG DM Plan Coordinator	KILA

37	Chandini P C	HA	KSDMA
38	Pratheesh C Mamen	PC- UNICEF	KSDMA
39	Amrutha K	HA	KSDMA
40	Clint Mathew	SCBC	KSDMA
41	Jeo John George	SPO	KSDMA
42	Vignesh K R	Environmental Planner	KSDMA
43	Pradeep G. S	HRA	KSDMA
44	Nikhil Suresh	HA	KSDMA
45	Adharv Suresh	Safety Engineer	KSDMA
46	Dr. Raveendran S	GIS Specialist	KSDMA
47	Gokul A	HA	KSDMA

Report Prepared by:

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2. Vignesh K R (Environment Planner)
3. Dr. Pratheesh C Mammen (UNICEF-KSDMA)

Event Organizing Team:

1. Amrutha Kolangad (HA Environment)
2. Vignesh K R (Environment Planner)
3. Dr. Pratheesh C Mammen (UNICEF-KSDMA)
4. Clint Mathew (SCB Specialist)
5. Praveen P U (IT Assistance)
6. Athira V M (MTO)