

Name of Event	<b>THREE-DAY TRAINING WORKSHOP FOR THE OFFICERS OF INDIAN FOREST SERVICE ON 'PREPARATION OF ECOSYSTEM HEALTH CARD'</b>
Date (s)	17.09.2024 to 19.09.2024
Duration	03 Days
Venue	Hotel Green Park, Nehru Nagar, Ram Nagar, Visakhapatnam
Purpose/Agenda	Preparation of Ecosystem Health Card
No. of Participants	16
Participating Agency (s)	IFS officers, scientist and faculties from National Centre for Sustainable Coastal Management (NCSCM) and Indian Institute of Forest Management (IIFM).
Organizing Agency (s)	ICFRE-Coastal Ecosystem Centre, Visakhapatnam
Funding Agency (s)	Ministry of Environment, Forest and Climate Change (MoEF&CC)
Collaborating Agency (s)	<ol style="list-style-type: none"> <li>1. National Centre for Sustainable Coastal Management (NCSCM, Chennai, Tamil Nadu)</li> <li>2. Indian Institute of Forest Management (IIFM, Bhopal, Madhya Pradesh)</li> </ol>

Concise Details of the Event:

#### **DAY -1**

**Shri. E. Venkat Reddy, IFS, Director, ICFRE-IFB, Hyderabad**, gave a warm welcome to all attendees and esteemed guests. He highlighted the importance of ecosystem and forest health, and praised the active participation of ICFRE-CEC in research and development. He briefed about socio economic aspects to be considered in health card preparation and also importance of using GIS technology in biodiversity assessment. The event was inaugurated **by the Guest of Honour Dr. V. V. S. S. Sarma, Chief Scientist and Scientist-In-Charge, National Institute of Oceanography Regional Centre, Visakhapatnam**. In his inaugural speech, he addressed the contributors of environment for nitrogen and identification of source of nitrogen through isotopes. He pointed out the effects of climate change on farmers' lives, specifically mentioning the fertilizer consumption. He urged forest officials and the scientific community to work together to prioritize environmental sustainability and boost ecotourism in coastal lands. Key topics like carbon sequestration and blue economy were highlighted. He stressed the critical need for creating an ecosystem health card to tackle these issues.

**Prof. Vazeer Mahmood Head of Department, Department of Geo-Engineering, Andhra University and Dr. Joe K. Kizhakudan, Principal Scientist and Officer In-Charge of Central Marine Fisheries Research Institute**, were honored guests at the event. **Prof. Vazeer Mahmood** emphasized the significance of inculcating the need for a healthy ecosystem around us from the infant stage. He also shed light on bringing a radical change in the culture of polluting the coastal ecosystems through human interventions stressing on plastic pollution.

**Dr. Joe K. Kizhakudan, Principal Scientist**, emphasized the significance of ecosystem health and the essential nature of the training program for ecosystem managers, such as forest departments. He mentioned that Creating resilience and recovery of ecosystems is in progress and we should go much further in the aspect. Providing an overview of different ecosystem services, he also briefed about the learning curve and adopting fishermen communities.

**Shri S. Srikantanatha Reddy, IFS, CCF, Visakhapatnam as Chief Guest** welcomed the participants to the city of destiny and discussed about the immense biotic pressure in eastern ghats and shared few incidents that took place in Srikakulam, Patapatnam and Vajrapukotturu areas which indicate the pressure on environment.

#### **Mission Life and Ek Ped Maa Ke Nam Program:**

After the inaugural session all the guests and participants were assembled for a Mission Life and Ek Ped Maa Ke Nam Program. Under the program all the participants and guests were planted a tree and took mission life pledge.

After this session, participants were offered theoretical knowledge on various topics during the training session.

**Dr. Yogesh K. Dubey, Professor, IIFM, Bhopal**, presented on “Preliminary Framework for Preparing Ecosystem Health Cards: way forward”. He highlighted an overview of the report card framework, indicator selection, description of different index formulations and various index aggregation methodologies. He also discussed about determining baseline conditions for each indicator using historical data or reference sites. He outlined the process required for the preparation of effective ecosystem health cards including identify values and threats, developing indicators for ecosystem health assessment, identifying thresholds, calculating grades and scores, and communication of results.

**Dr. Kakolee Banerjee, Scientist, NCSCM, Chennai** provided a detailed discussion on " Step-by-step process for Preparation of Ecosystem Health Report Card." She explained in detail about identifying the specific ecosystem or area of focus, choosing relevant ecological indicators that reflect ecosystem health, such as Biodiversity (species richness, presence of keystone species), Water quality (pH, nutrient levels, contaminants), Habitat integrity (land use changes, fragmentation), Climate indicators (temperature trends, precipitation patterns) etc. Field data collection, conducting field studies to collect new data using standardized methods, analyzing collected data against benchmarks or reference conditions to assess the health of each indicator was presented. She also briefed about combining results from all indicators to provide an overall assessment of ecosystem health and developing of a scoring system (e.g., A-F grades, color-coded scores) to simplify communication of results. Involve local communities and stakeholders for additional insights and qualitative data. **Dr. Asir Ramesh D.,**

**Scientist, NCSCM, Chennai** delivered a presentation on the topic Identification and Estimation of Equivalent Economic Values of the Goods and Services produced by Ecosystems. He covered the goods and services provided by ecosystems and their significance and various measures in value of ecosystem services. The presentation also included categorization of different services like provisioning services, regulating services, cultural services, supporting services with an overview of the overall ecosystem health index.

**Dr. V.V.S.S. Sharma, Chief Scientist and Scientist-In-Charge** presented a detailed presentation on “Eco health report cards for Marine Ecosystems”. He clearly discussed about the various key pathways of pollution entering into marine systems affecting water quality, marine life, and ecosystems, different chemical components disturbing the water quality and also usage of stable isotopes in tracing the different pollution loads. The talk concluded with an overview of the project key outcomes and significance of marine ecosystem health cards.

**Prof. Vazeer Mahammood, Head of Department, Department of Geo-Engineering, Andhra University.** He presented on the topic “Preparation of Coastal Ecosystem Health Cards: A Remote Sensing Approach”. He put emphasis on choosing appropriate satellite imagery or aerial photography sources like sentinel-2, Landsat, MODIS etc. and considering drones for high-resolution data in smaller areas. Gathering multi-temporal data to analyze changes over time and ensuring data with relevant spectral bands for analyzing specific indicators, remote sensing to prepare Coastal Ecosystem Health Cards providing a cost-effective and comprehensive way to monitor and assess coastal environments were also mentioned. By following a structured approach, creating valuable tools for informing management and conservation efforts, ultimately supporting the sustainability of coastal ecosystems were the concluding remarks of the presentation.

## **Day-2**

### **Yoga session**

The day starts with yoga session by **Dr. K. Ramesh Babu, Head of the Department**, Department of Yoga & Consciousness, Andhra University, Visakhapatnam. He pointed out on importance of yoga and its uses in day-to-day life. He also gave a brief introduction about the origin of yoga and different types of yoga. He emphasis on benefits of Yoga like Physical Health, Mental Clarity, Emotional Balance and Spiritual Growth. He introduces the concepts of Hatha Yoga, Vinyasa Yoga, Ashtanga Yoga, Yin Yoga and Kundalini Yoga etc., to the participants.

### **Field training and visits**

As a part of field study, the training participants visited Kondakarla Ava Lake, Kakarapalle, Visakhapatnam district, AP for demonstration of various instruments in collection of data to prepare ecosystem health cards – by NCSCM in the forenoon session and Kambalakonda Wildlife Sanctuary

for learning the techniques of collection of remote sensing data using Drone in the afternoon session. The NCSCM-Chennai, faculty members along with the participants and organizers through boat entered the water body and conducted a water analysis experiment with the help of equipment like port digital sampling system and portable depth sounder. Parameters like dissolved oxygen, TDS, Temperature, pH, Salinity and depth of the lake etc were all found by means of the above-mentioned equipment by **Dr. Kakolee Banerjee Scientist, NCSCM, Chennai**. Participants asked about the primary livelihood opportunities in the village, the status of water body since few years and the challenges faced by those living nearby the lake to the local residents. In the afternoon, the participants visited Kambalakonda Wildlife Sanctuary for learning the techniques of collection of remote sensing data using Drone by **Prof. Vazeer Mahmood, Andhra University**. The drone was flown into the air and practically the surveying of a forest area by means of a drone methodology was explained in detail during the session. Also, visiting a very knowledgeable biodiversity park interpretation unit with different ecosystem display models in 3D made the session more interesting to the participants.

### **Day-3**

#### **Technical Session**

The third day was initiated with a presentation by **Smt. Bharati Patel, Scientist- C, ICFRE-IFB, Hyderabad** on “Integrating ecosystem structure and functions as indicators of ecosystem health”. During this session she addressed about the importance of various structures and functions of indicator species in assessing the ecosystem health.

Later the participants were divided into three groups A, B and C. They were allowed to identify different ecosystem services which they observed during the second day field visit along with challenges and threats faced by the Kondakarla lake ecosystem and the indicators which can be considered to prepare an ecosystem health card. All the three groups actively participated and suggested many outputs regarding the services, threats and indicators. Compilation, presentation and discussion on Draft Ecosystem Health Card prepared by participants was done by Dr. Yogesh Dubey, Professor, Dr. Kakolee Banerjee, Scientist and Smt. Bharati Patel, Scientist. This session allowed participants to interact with resource personnel actively, sharing experiences and seeking clarification. Senior participants shared valuable insights and expressed a collective interest in supporting related initiatives. They also suggested research institutions conduct state-specific studies if possible.

## Valedictory Session

### Panel Discussion:

#### Introduction

- The participants were welcomed for panel discussion by **Dr. K. Ravichandran, Director, IIFM** who along with **Shri. E. Venkat Reddy, IFS, Director, ICFRE-IFB, Hyderabad** chaired the panel and **Shri Neeraj Kumar, IFS** and **Shri Periasamy Arumugam, IFS**, from participants were invited as co-chairpersons.
- Brief introduction of the co-chairpersons and an overview of the discussion objectives were mentioned by the chair and co-chairpersons. The participants were encouraged to identify specific areas where they feel training is lacking and explore current challenges faced in their roles that could be addressed through training.

#### Discussion:

**Q: Shri Arul Rajan P** mentioned that new innovative things can be learned through foreign trainings; however, officers are restricted from participating in these programs abroad.

**Ans: Dr. K. Ravichandran** said that DOPT guidelines to utilize the training opportunities and expertise in India. He added that whenever possible, the government strives to fulfil the criteria for foreign trips, and domestic funding is available through government support.

**Q: Shri Arul Rajan P** suggested that the Environment Department should be included under Forestry, and advocated for consolidating CPCB and SPCB under a single administration i.e., MOEFCC.

Additionally, it was pointed out by **Shri Neeraj Kumar** that in Uttar Pradesh, the District Environmental Plan is prepared by the DFO, but he does not possess sufficient power to implement it effectively. **Shri Arul Rajan P** proposed that training content should be made available on online platforms.

**Ans: Dr. K. Ravichandran** noted that the I-GOT Karmayogi platform hosts various courses, and that national civil service training institutes are creating relevant content.

**Q: Shri Arul Rajan P** mentioned the need to invite experts among forest officials from central, state, and regional institutes to engage with forestry training institutes both online and offline.

**Ans: Dr. K. Ravichandran** highlighted that IIFM conducts numerous trainings and encourages experts to connect and deliver lectures as professors of practice.

**Q: Shri Ganveer Dhamshil** pointed out the lack of coordination among officers with different expertise at the national level. There is a call for a centralized platform to consolidate information about various experts and avoid repetition of training topics.

**A: Dr. K. Ravichandran** agreed to explore the creation of a platform to list experts.

**Shri Arul Rajan P** emphasized the importance of identifying and interacting with experts, particularly forest officers.

**Q: Shri Karthick. V** suggested developing a question-and-answer platform similar to Quora for sharing information and integrating knowledge from senior officers.

**Q: Shri Arul Rajan P** highlighted the need to identify and engage with higher-ranking forest officers for mere interaction with them

**A: Dr. K. Ravichandran** said that all senior officers are touring and too frequent tours are not possible in their hectic schedules. We can suggest them to have more interactions with officers during the field visits.

**Dr. K. Ravichandran, Director, IIFM** and **Shri. E. Venkat Reddy, IFS, Director, ICFRE-IFB, Hyderabad**, appreciated all the participants for their dedication to the training. Training completion certificate were presented to the participants by **Dr. K. Ravichandran, Director, IIFM**. The valedictory session presided over by **Shri T. Srinivas, Scientist- C, Head (In-charge), ICFRE-CEC, Visakhapatnam** providing a comprehensive overview of the 3 daystraining activities. In his vote of thanks, he expressed gratitude to all attendees for their active participation and valuable contributions throughout the meeting. He highlighted the significance of the discussions held, particularly regarding the integration of training opportunities and the collaboration between various departments.

In closing, Shri T. Srinivas encouraged all participants to continue fostering collaboration and communication within their respective roles, ensuring that the collective expertise of the group leads to effective implementation of the ideas discussed. He thanked everyone for their time and contributions and expressed hope for continued progress in their shared goals.

# INSIGHTS OF TRAINING

## DAY – 1 Theoretical session



DAY – 2 Field visit (Practical Session)



DAY – 3 Hands on training session and Valedictory session



PRESS COVERAGE

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దిలీప్ తదితరులు పాల్గొన్నారు.

ఈ ఆగమపూల మొదల రవనూ అధికారులు వచ్చి... భూముల్లో హాచరకలు బొర్లులు ఎర్పాటు చేయాలని భూమును పరిశీలించారు. ప్రభుత్వ భూముల స్థానికులు కోరుతున్నారు.

ఇక ఎకోసిస్టమ్ కు హెల్త్ కార్డులు

- బిత్తిడి నీలలు, అడవుల సంరక్షణకు ప్రత్యేక ప్రణాళికలు
- ఎన్ఎస్ఐసీఎం డైరెక్టర్ డా.రామచంద్రన్ వెల్లిడి
- విశాఖలో ప్రారంభమైన ఎకోసిస్టమ్ హెల్త్ కార్డుల సదస్సు



ఎన్ఎస్ఐసీఎం డైరెక్టర్ రామచంద్రన్ తో పలు సంస్థల ప్రతినిధులు, శాస్త్రవేత్తలు, అటవీ అధికారులు

సాక్షి, విశాఖపట్నం : పర్యావరణాన్ని పరిరక్షించేందుకు అటవీ వ్యవస్థను సంరక్షించే విధంగా ఎకోసిస్టమ్ అన్నింటికీ దేశ వ్యాప్తంగా హెల్త్ కార్డులు నిర్వహించే ప్రక్రియకు శ్రీకారం చుడుతున్నట్లు నేషనల్ సెంటర్ ఫర్ సస్టెనబుల్ కోస్టల్ మేనేజ్మెంట్ (ఎన్ఎస్ఐసీఎం) డైరెక్టర్ డా.పూర్ణాక్ష రామచంద్రన్ తెలిపారు. ఇండియన్ కోస్టల్ ఆఫ్ ఫారెస్ట్రీ రీసెర్చ్ ఎడ్యుకేషన్ (ఐసీఎఫ్ఆర్ఈ), ఎన్ఎస్ఐసీఎం సంయుక్త ఆధ్వర్యంలో 'ట్రీవరీషన్ ఆఫ్ ఎకోసిస్టమ్ హెల్త్ కార్డు' పేరుతో ఓ హోటల్ లో సదస్సు మంగళవారం ప్రారంభమైంది. ఈ సందర్భంగా ఆయన మాట్లాడుతూ పర్యావరణం, అటవీ, వాతావరణ మార్పుల మంత్రిత్వ శాఖ ఆధ్వర్యంలో అటవీ సమస్యలను పరిష్కరించేందుకు ప్రణాళికలు సిద్ధం చేస్తున్నామన్నారు. ఇందులో భాగంగా దేశవ్యాప్తంగా సదస్సులు నిర్వహిస్తూ శిక్షణ తరగతులు చేపడుతున్నట్లు వివరించారు.

ఆయా రాష్ట్రాల్లో ప్రస్తుతం ఉన్న అటవీ వ్యవస్థ స్థితిగతులపై చర్చించడంతోపాటు దేశంలో భూ-వినయోగ మార్పులు, స్థిరమైన అభివృద్ధి, చిత్తడి నీలలు.. ఇలా ప్రతి పర్యావరణ వ్యవస్థకు హెల్త్ కార్డులు రూపొందించే పద్ధతులపై చర్చిస్తున్నామని తెలిపారు. గ్రీన్ ఇండియా మిషన్, అటవీ అగ్ని నివారణ, నిర్వహణ పథకం, జైషధ మొక్కల సంరక్షణ, స్యూల్ నర్సరీ యోజన, వన్యప్రాణుల ఆవాసాల సమగ్ర అభివృద్ధి తదితర కార్యక్రమాలపై సదస్సులో చర్చించారు. ఎవెన్యూ షాంటిషన్ కోసం పొడవైన మొక్కలను నిర్వహణ, తోటలు, అడవుల సంరక్షణ, రక్షణ విధుల కోసం తనిఖీ మార్గాలు, అటవీ రవాణా నిర్మాణం, అటవీ నిర్వహణ పద్ధతులపై శాస్త్రవేత్తలు అభిప్రాయాల్ని సేకరించారు. సదస్సులో ఐసీఎఫ్ఆర్ఈ డైరెక్టర్ వెంకటరెడ్డి, ఐఐఎఫ్ఎం టోపాల ప్రొఫెసర్ యోగేష్, ఎన్ఎస్ఐసీఎం శాస్త్రవేత్త డా.బెనర్జీ పాల్గొన్నారు.

కాలుష్యంతో పర్యావరణంలో పెను మార్పులు

కార్పొరేషన్, స్టూడియో: ఇండియన్ కోస్టల్ ఆఫ్ ఫారెస్ట్రీ రీసెర్చ్ అండ్ ఎడ్యుకేషన్ (ఐసీఎఫ్ఆర్ఈ) - (సెంట్రల్ ఎంపవర్డ్ కమిటీ) నీలన్ విశాఖ పట్టణం అధ్వర్యంలో మంగళవారం గ్రీన్ ఫారెస్ట్ హోటల్ లో పర్యావరణ వ్యవస్థ - అలోగ్య కార్డు పై సదస్సు నిర్వహించారు. వివిధ రాష్ట్రాల నుంచి వచ్చిన అటవీశాఖ అధికారులు, శాస్త్రవేత్తలతో మూడు రోజులపాటు ఈ సదస్సు జరగనుంది. తొలి రోజు కార్యక్రమంలో ఐసీఎఫ్ఆర్ఈ సంచాలకులు వెంకటరెడ్డి మాట్లాడుతూ పర్యావరణ పరిరక్షణకు తక్షణం తీసుకోవాల్సిన చర్యలపై సూచనలు చేశారు. జీవ వైవిధ్యం ఉపయోగాలు.. ప్రస్తుతం అందులో జరుగుతున్న వివిధ మార్పులను వివరించారు. సీఆల్ఐడె వట్టం ఉద్దేశం: దాని ఉపయోగాల గురించి తెలిపారు. సీఎస్ఐఆర్, ఎన్ఐఐఓ ప్రధాన శాస్త్రవేత్త డాక్టర్ వీవీఎస్ శర్మ నీలి ఆర్థిక వ్యవస్థ గురించి వివరించారు. సమగ్ర అభివృద్ధి కోసం



సదస్సుకు హాజరైన అటవీశాఖ అధికారులు, శాస్త్రవేత్తలు

మోతాదులో అక్విజిట్ ఉండాలని, లేకపోతే సముద్ర తీవుల మనుగడ కష్టమవుతుందన్నారు. పెరుగుతున్న కాలుష్య కారకాలను నియంత్రించాల్సి ఉందన్నారు. జియో ఇంజనీరింగ్ విభాగాధిపతి అచార్య వత్సల్ మహామూర్తి మాట్లాడుతూ మానవులు పర్యావరణానికి తీవ్ర హాని చేస్తున్నారన్నారు. గాలి, నీటిని కలుషితాలతో నింపేస్తున్నారని, దాని ప్రభావం భవిష్యత్తు తరాలపై పడుతుందని ఆవేదన వ్యక్తం చేశారు. కార్యక్రమంలో సీఎంఎఫ్ఆర్ఐ (ట్రీఫ్లి) పల్ సైంటిస్ట్ హెడ్ కె కీలుకుడన్, విశాఖ సీసీఎఫ్ ఎస్, శీతాంశ్ రెడ్డి పాల్గొన్నారు.

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