

PROCEEDINGS OF 2nd NATIONAL SEMINAR
ON
'CONSERVATION, RESTORATION AND
SUSTAINABLE MANAGEMENT OF MANGROVE
FORESTS IN INDIA'

15-17 June 2016



Organized by

Centre for Mangroves and Coastal Ecology (CMCE)
Institute of Forest Biodiversity (IFB)
(Indian Council of Forestry Research and Education)
Visakhapatnam – 530 003

**PROCEEDINGS OF 2nd NATIONAL SEMINAR
ON
'CONSERVATION, RESTORATION AND SUSTAINABLE MANAGEMENT OF
MANGROVE FORESTS IN INDIA'**

A three days National seminar on 'Conservation, restoration and sustainable management of mangrove forests in India' was organized at Visakhapatnam by the Centre for Mangroves and Coastal Ecology (Institute of Forest Biodiversity, Hyderabad), from 15th to 17th June 2016, with financial assistance from Indian Council of Forestry Research and Education, Dehradun and other stakeholders (Visakhapatnam Port Trust, NTPC Simhadri, EGREE foundation Kakinada, CREDAI, DIVIS and Union Bank of India).

The seminar got underway on 15th morning at the Green Park Hotel, Visakhapatnam, with a prayer and ceremonial lighting of lamp by the dignitaries viz., Dr. N. Yuvaraj, IAS, District Collector, Visakhapatnam district; Sri M.T. Krishna Babu, IAS, Chairman, Visakhapatnam Port Trust; Sri P. Bala Kiran, IAS, District Collector, Kannur District; Sri Surendra Kumar, IFS, Director, Institute of Wood Science & Technology, Bangalore; Dr. K. Kathiresan, Centre for Advanced Studies, Annamalai University, Chennai.

Dr. G.R.S. Reddy, Director, Institute of Forest Biodiversity, Hyderabad, welcomed the dignitaries, scientists & researchers from various National research organizations, academicians & research students from various Universities, officials and field functionaries of coastal Forest Departments, local environmentalists and the representatives of print and TV media. In his inaugural address Dr. Reddy stated that it was at the same venue 12 years back the first seminar on the 'Conservation, restoration and sustainable management of mangrove forests in India' was held, with the efforts of then Director General of ICFRE – Sri R.P.S. Katwal and the then Director of IWST - Dr. K.S. Rao. He opined that since then twelve years have passed and a lot of developments have taken place especially in the field of science and technology, industrialization, urbanization, expansion of agriculture and how these developments have impacted conservation, restoration and sustainable management of Mangroves needs to be documented. And, it was precisely with this very thought in mind, the seminar was being held, at the very same venue, to discuss and deliberate, to share experiences and exchange ideas, with the ultimate objective of bringing the Mangroves knowledge base on up-to-date and crystallize what

the newly created Centre can do in short-term and long-term. Dr. Reddy stated that ICFRE had a plan of establishing an ‘Advanced Centre on Mangroves and Biotechnology’ at Hyderabad, way back in 1998. Somehow the plan had taken 16 years to bear fruit. It was made possible by Dr. Ashwani Kumar IFS Director General ICFRE & Chancellor of FRI University and his team at ICFRE who visualized that an Institute of Mangroves was badly needed here in Vishakhapatnam. He further opined that the 'Centre for Mangroves and Coastal Ecology is in its infancy and needs a little bit of spoon feeding from all other established organizations in the country, in the field of Mangroves and Coastal Ecology, to establish itself on a strong footing'.

The chief guest of the seminar Dr. N. Yuvaraj, IAS, District Collector, Visakhapatnam district, expressed his happiness that Visakhapatnam was hosting the seminar, citing that the people of Vizag were very much aware about the potential value of mangroves and their conservation. He appreciated the efforts of Sri P. Bala Kiran, IAS, District Collector, Kannur District, because of whose efforts in Kerala State, the mangroves occurring on revenue and private lands were brought under mangrove reserve forests, paving the way for their protection and long term conservation. He expressed that the same example should be repeated across the country. He assured the full support of the district administration for any such efforts in Andhra Pradesh to bring mangroves on revenue lands under reserve forests. Further, he informed the audience that land for the Centre for Mangroves and Coastal Ecology has been identified and hoped that the foundation stone for the same would be laid sometime soon.

Sri M.T. Krishna Babu, IAS, Chairman Visakhapatnam Port Trust, expressed his happiness that the Centre for Mangroves and Coastal Ecology under the Institute of Forest Biodiversity, Hyderabad, had come forward for organizing this dialogue on mangroves at Vizag. He shared his thoughts on the importance of biodiversity and how we are losing them fast because of the recklessness of mankind. He stressed on the importance of native species that have evolved over millions of years, in maintaining the health and balance of ecosystems. He informed the audience about the COP11 – the United Nations conference on Biodiversity, which was held under his chairmanship at Hyderabad, during 2012 and following which how the Hyderabad Biodiversity was indexed with respect to native species. He stressed upon creating awareness about biodiversity through school curriculum, quizzes, establishing biodiversity parks, conducting field

trips for students *etc.*, to conserve and further improve biodiversity index. Then, he talked about the history of mangroves in Vizag and how mangroves have been decimated over the past 150 years because of various developmental activities including Vizag Port. He stressed upon the idea of identifying the remaining pockets of mangroves in the creeks and channels of Vizag and notify them into reserve forests before any further developmental activities or encroachments leading to further loss of mangroves. He informed the audience about the proposed regeneration plan of 50 acres mangroves within the Port Trust area, within the next two years, with technical guidance from the Centre for Mangroves and Coastal Ecology. He informed that the project will not only serve as a technology demonstrator for regenerating mangroves but also as future conservation plot for native mangrove species.

Sri Surendra Kumar, IFS, Director, Institute of Wood Science and Technology, Bangalore, informed that conducting this 2nd National seminar on mangroves and bringing all the experts in the field is a very good beginning for the newly established Centre for Mangroves and Coastal Ecology. He told, as per the ISFR 2015, mangrove areas have increased by 112 sq. km over its previous assessment; however, it is not a matter for complacency. As only three districts, out of the 53 districts having mangrove cover, have shown appreciable increase of 15 sq. km., a study need to be taken up by the CMCE to ascertain the causes of this disparity in mangrove cover increase, which ultimately will help in tackling the dwindling mangroves. He opined that unless some monetary benefits or carbon credits are given to persons having mangroves on their private lands, it is difficult to motivate them for conservation of mangroves. Citing the example of Kannur district in Kerala, he opined that there should be settlement of mangroves on private, revenue and community lands for their long-term conservation. He told that as there are multiple stakeholders *viz.*, Forest department, Revenue department, Fishery department, Ports authority *etc.*, there should be a co-coordinating agency to bring all stakeholders together for the conservation of mangroves. He informed the audience that Institute of Wood Science and Technology, Bangalore is doing research on anatomical properties of mangrove woods for their identification purpose, so as to help the Forest Department of Maharashtra in evicting and preventing mangrove encroachments.

The guest of honour of the seminar Sri P. Bala Kiran IFS, District Collector, Kannur district, briefly narrated 'Mission Mangroves – Kannur'. He briefly touched upon the land holding patterns of Kannur district, the Forest Acts of Kerala and described how he went about in forming a team of forest and revenue officials for survey, demarcation and finally notification of 600 acres of revenue land having mangroves as reserve forest. Incidentally, this was the first mangrove reserve forest notified post-independence. The effort was highly appreciated by all the delegates and it was suggested that the 'Mission Mangroves – Kannur' should be followed by all the coastal states having mangroves. It was, also, suggested that such success stories should be incorporated as part of course curriculum in all administrative training academies. Sri P. Bala Kiran gave a detailed presentation on 'Mission Mangroves – Kannur' during the first technical session.

Dr. K. Kathiresan, Dean of Centre for Advanced Study in Marine Biology, Annamalai University, delivered the key note address. He briefed about the status of mangroves in India in terms of distribution, species compositions and structure, importance of mangroves and their adaptability, possible threats to mangrove species and mangrove ecosystem, conservation and management strategies. He stressed that provision of 40% open area in mangroves is essential to serve as a playground for associated fauna which will have synergetic effect on the growth and survival of mangrove vegetation. The speaker further emphasised that for the future of mangrove, there is a need for restoration of ecosystem services of mangrove areas with community participation, assisted by infrastructure development, financial support and strong political will.

The inaugural session was concluded with vote of thanks by the organizing secretary Sri D. Jayaprasad, IFS, IFB Hyderabad. He thanked the chief guest Dr. N. Yuvaraj, IAS, District Collector, Visakhapatnam district, for his keen interest in the seminar and for his efforts in allocating lands for the Centre for Mangroves and Coastal Ecology; he thanked Sri M.T. Krishna Babu, IAS, Chairman Visakhapatnam Port Trust, for his financial support and providing a project to the CMCE; he thanked Dr. K. Kathiresan, Dr. A.J. Solomon Raju, Sri N. Prateep Kumar IFS, Dr. U. Prakasam IFS, Dr. K.S. Rao, Dr. Ansari, Sri. S.B.L Mishra PCCF & HoFF Andhra Pradesh and other forest officials from Forest Departments, academicians and scholars

from Andhra University, scientists from various research organizations, NGOs and environmentalists for their keen interest in the seminar.

The first technical session on 'Status of mangroves: conservation, restoration and sustainable management' started with the presentation of Sri H.S. Singh, IFS (Retd.), Gujarat Forest department. Dr. K.S. Rao, former Director IWST, chaired the session with Dr. Animesh Sinha and Dr. Anil Sethi as rapporteurs. Altogether six presentations were made by the various state representatives.

The second technical session on 'Resource survey and mapping of mangroves' was chaired by Dr. K. Kathiresan, Dean of Centre for Advanced Study in Marine Biology, Annamalai University, assisted by Dr. Animesh Sinha and Dr. Anil Sethi as rapporteurs. Altogether two presentations were made.

The second day's proceedings started with the technical session on 'Ecology and biology of mangroves'. Dr. A.G. Untawale, Ecologist & Scientist (Retd.), National Institute of Oceanography, Goa, chaired the session assisted by Dr. Animesh Sinha and Dr. Anil Sethi as rapporteurs. Altogether five presentations were made by eminent scientists and academicians.

The fourth technical session on 'Management of mangroves and policy issues' was chaired by Sri H.S. Singh, IFS (Retd.), Gujarat Forest Department, assisted by Dr. Animesh Sinha and Dr. Anil Sethi as rapporteurs. Altogether three presentations were made.

The fifth and last technical session on 'Anthropogenic effects, including climate change on mangrove conservation, regeneration and restoration' was chaired by Dr. K. Ravichandran, IFS, Andaman & Nicobar Forest Department, assisted by Dr. Animesh Sinha as rapporteur. Altogether four presentations were made.

Following the completion of the technical sessions, a panel discussion was held. The panelists included Sri H.S. Singh IFS, Dr. K. Kathiresan, Dr. A.G. Untawale, Sri Vasudevan IFS, Dr. N. Rama Rao and Dr. B. Nagarajan. The panelists deliberated on the various presentations made

during the technical sessions and formulated the following set of recommendations in consultation with the other seminar participants.

Recommendations

1. The success story on declaration of mangroves, existing on revenue and private lands, as Reserve Forest in Kerala and Maharashtra need to be replicated in all Coastal states.
2. State level Mangrove and Marine Biodiversity Cell headed by senior Forest Officer may be created in all coastal states to address the critical issues of coastal, wet land and marine life conservation including conditions mentioned under the biodiversity convention.
3. Government of India in coordination with the state level Mangrove Cells need to prioritize the actions required to cope up with the sea level rise, increasing salinity and decreased fresh water flow in rivers along the east coast of India.
4. Inter-state water treaties must ensure minimum level of river water flow in mangrove swamps to sustain proper growth and development of mangroves.
5. Dense shelterbelt of mangroves should be developed along the coast, wherever possible, to minimize the impacts of cyclones and floods.
6. All the degraded mangrove wetlands are to be restored and reclaimed with suitable mangrove species.
7. Kali Bhanj Diya Island in the Deltaic area of River Mahanadi should be preserved as a National Mangrove Germplasm Preservation Centre.
8. Mangrove conservation has to be integrated with conservation of coastal and marine biodiversity and fisheries. Integrated strategies need to be adopted.
9. Government of India needs to examine the possibility of declaring important mangrove areas as 'Biodiversity Heritage Sites'.
10. Government of India should come out with a clear guideline on ecotourism in mangrove areas.
11. Industrial development, especially thermal power plants, should be positioned away from the impact zone of mangroves to avoid its negative impact.
12. Government of India should remove bottlenecks for acquiring catching-up technologies or even imported technologies, wherever necessary, and develop suitable benefit sharing mechanisms between participatory Institutes.

13. Government of India should authorize State Forest Departments to take cognizance of CRZ violations related to mangroves under the EPA, 1986, State CZMA.
14. Community participatory mangrove management need to be strengthened, assisted with infrastructure development, financial support, strong political support and involvement of bureaucrats.
15. Greater thrust should be given to livelihood activities based on mangroves like crab farming and aquaculture.
16. As a resource mobilization strategy, certain percentage of the project development cost need to be earmarked as a corpus fund, wherever mangroves are sacrificed for developmental work. MoEF &CC should also allot more funds.
17. Much more new areas of mangroves on revenue and private lands should be brought under management action plan to attract financial support from centrally sponsored schemes.
18. The possibility of getting climate change fund for mangrove conservation should be explored.
19. There is an urgent need for capacity building on mangroves. Young scientists, researchers and research fellows need to be adequately trained to build research capability on mangroves.
20. There is a need to create mechanisms for “ease-of-doing” interdisciplinary/inter-institutional/interface research, synergizing the strengths of existing organizations.
21. There is a need to resolve taxonomic issues (such as species complexes, hybrids *etc.*) using advanced taxonomic tools like DNA barcoding.
22. Genetic diversity and differentiation studies of important mangroves should be taken up to assess their genetic adaptability to the ever changing climatic conditions.
23. Phylogenetic studies of mangroves should be taken up to gain insight into their evolutionary history and document genetic relationships (Biosystematics) among the mangrove species.
24. Quantitative inventory of floral and faunal diversity, and their dynamics should be taken up in all Indian mangroves.
25. Ecological impact studies of forest fire, grazing and collection of non-wood forest product on regeneration and growth of mangroves need to be taken up.

26. Ecological impact study of eco-tourism on conservation of mangroves needs to be taken up.
27. Significant amount of studies on reproductive biology of Indian mangroves have been taken up already, enriching reproductive knowledge base. Reproductive biology studies for the remaining Indian mangroves need to be taken up.
28. Long-term studies should be initiated to monitor effects of climate change (e.g. rise in atmospheric temperature, rise in sea level, increased frequency of storms, siltation *etc.*.) both at species as well as ecosystem level.
29. Hydrodynamic studies should be taken up in mangroves to assess and document critical requirement of water for mangrove vegetation, wildlife, fishery and other resources.
30. More detailed studies on the very important role of mangroves in carbon sequestration need to be taken up.
31. There is a need to document ethnobotanical knowledge of the indigenous people dependent on mangroves for their numerous day-to-day needs.
32. Bioprospecting studies should be taken up on mangrove species to screen for novel and useful bio-active compounds.
33. Pest and disease problems of important mangroves like *Sonneratia apetala*, *Xylocarpus granatum*, *Acicennia marina* *etc.*, need to be looked into and suitable control measures need to be developed.

A valedictory function was held to conclude the two days seminar. Professor E.A. Narayana, Vice-Chancellor, Andhra University, Visakhapatnam, was the chief guest of the function and Dr. K. Satyanarayana Rao was the guest of honour. Other dignitaries included Dr. U. Prakasam IFS, Sri Mohan Karnat IFS and Dr. A.G. Untawale. While addressing the participants, Professor E.A. Narayana thanked the organizers for the opportunity and stressed that utmost efforts should be made to implement the seminar recommendations, to the maximum extent possible, by sending it to appropriate authorities. He opined that local communities should take initiatives, without depending on Government programmes, to restore and maintain biodiversity in order to maintain ecological balance of the mangroves and coastal ecosystems, which in turn will protect their interests during adverse times like the Tsunami. And, it is the duty of the various research organizations like CMCE to bring that ecological awareness among the local communities. He

informed that Andhra University have adequate infrastructure and man power in the field of mangroves and coastal ecology, and have carried out lot of research in this field, which may be utilized by various organizations.

Dr. U. Prakasam, IFS, Director, Tropical Forest Research Institute, Jabalpur, in his valedictory address highlighted the uniqueness of the mangroves and their potential for ecosystem services - which has been quantified to be 173 billion dollars/day. He reiterated that these unique systems need to be conserved and maintained for posterity by (i) involving local communities, (ii) arranging alternative livelihoods for local communities, (iii) research in the grey areas, (iv) management and legal protection by state forest departments. He appreciated the efforts of the Kannur district administration and the Maharashtra mangrove foundation for bringing the mangroves on revenue and private lands under reserve forest. He expressed his satisfaction at the increase of mangrove cover during the intervening period between the two mangroves seminars and hoped that the cover will increase manifold by the time we meet for the third time. He appreciated and hoped that the efforts made by the Centre for Mangroves and Coastal Ecology, Mangroves for Future, MS Swaminathan Research Foundation, Maharashtra Mangroves Foundation and the Mangrove Society of India will go a long way conserving this unique and fragile ecosystem.

Sri Mohan Karnat, IFS, Group Co-ordinator Research, Institute of Wood Science and Technology, Bangalore, in his valedictory address appreciated the efforts of the organizers of the seminar. He opined that the importance mangroves comes to fore only during the catastrophes like Tsunamis. He expressed his happiness at the awareness the seminar has generated among the research scholars and the Ph.D. students and told that more such awareness programmes are needed for the conservation of mangroves. He told that very little work has been done on mangroves and there exists huge potential, as mangroves are the future of human food.

Dr. A.G. Untawale, Scientist (Retd.), National Institute of Oceanography, Goa, opined that the younger generation of scientists and researchers need to be encouraged to work on mangroves. He told that seminars and meetings of smaller scale need to be arranged around mangroves to spread the message of 'mangroves conservation' among people who are directly dependent on

mangroves. There is an urgent need to create awareness among villagers, students, ladies, politicians, bureaucrats, judiciary and the media. He invited the audience to be the part of 'Mangroves Society of India' and hoped that mangroves will see a good future.

The guest of honour of valedictory function, Dr K. Satyanarayana Rao, informed the audience that the Indian Forest scientists, Foresters and Forest managers have faced many problems in the past but never got bogged down by those problems, and always have come up with innovative solutions. He expressed his happiness at the increase in mangrove cover and the general increase in forest cover in India. He thanked the organizers for bringing together all the experts on mangroves for the seminar and conducting it very nicely with the limited staffs of IFB and CMCE.

The valedictory function was concluded with vote of thanks by Sri D. Jayaprasad, organizing secretary of the seminar. Sri Jayaprasad narrated his childhood experiences of mangroves at Visakhapatnam and later at Kannur, and how it became an inspiration to establish the 'Centre for Mangroves and Coastal Ecology' and conducting the present seminar. He thanked the vision and efforts of Dr. K.S. Rao and Dr. Rama Rao for the establishment of CMCE. From the organizers side he thanked the chief guest of valedictory function Professor E.A. Narayana; distinguished guests of valedictory function - Dr. U. Prakasam IFS, Sri Mohan Karnat IFS, Dr. A.G. Untawale, Dr. K.S. Rao; other guests – Dr. Ansari, Sri Surendra Kumar IFS, Dr. Rama Rao, Sri H.S. Singh IFS, Dr. Nagarajan, Dr. K. Ravichandran IFS, Dr. Thulsi Rao, Mrs. Mekro IFS, Dr. Solomon Raju, Dr. Animesh Sinha, Dr. Anil Sethi; Professors, Academicians and scholars from Andhra University; scientists from various National organizations; Andhra Pradesh Forest Department and EGREE foundation; sponsors – Visakhapatnam Port Trust, NTPC, DIVIS, EGREE Foundation, CREDAI, Union Bank of India; staff of IFB and CMCE. Finally, he thanked the print and TV media for the wide coverage of the event.

Field visit to Coringa Wildlife Sanctuary:

About thirty participants of the seminar were taken on a one day field visit to the 'Coringa Wildlife Sanctuary', situated near Kakinada on 17.06.2016. The participants were taken on a walking tour of the sanctuary, over the extensive network of board-walks and later on a boat ride

to the Kakinada bay-area. Sri Satyanarayana (DFO); Dr. K. Thulsi Rao (State Project Coordinator) and Sri Suneel (Ranger), took turn to explain about the sanctuary, the mangrove vegetation, wildlife and the biodiversity management plan that has been developed for the sanctuary under the GoI-UNDP-GEF-GoAP project 'Mainstreaming coastal and marine biodiversity conservation into production sectors'. All the participants attended the 'Swachh Bharat Programme' organized in the Coringa Wildlife Sanctuary. The District Collector, East Godavari District, addressed the participants of the programme on the importance of the mangroves and their conservation.

Seminar Photographs

Fig 1: Auspicious beginning to the seminar with invocation.



Fig 2: Ceremonial lighting of lamp at the inaugural function.



Fig 3: Welcome address by Dr. G.R.S. Reddy, Director, IFB, Hyderabad.



Fig 4: Address by chief guest Dr. N. Yuvaraj, IAS, District Collector, Visakhapatnam.



Fig 5: Address by Sri M.T. Krishna Babu, IAS, Chairman, Visakhapatnam Port Trust.



Fig 6: Release of Souvenir.



Fig 7: Felicitation of chief guest Dr. N. Yuvaraj, IAS, District Collector, Visakhapatnam.



Fig 8: Address by organizing secretary Sri D. Jayaprasad, IFS, CMCE, Visakhapatnam.



Fig 9: Sri M.T. Krishna Babu, IAS, Chairman, VPT, interacting with TV media.



Fig 10: Dr. G.R.S. Reddy (Director, IFB, Hyderabad) and Sri D. Jayaprasad (CMCE, Vizag) interacting with press media.



Fig 11: Key-note address by Dr. K. Kathiresan, CAS, Annamalai University.



Fig 12: Guest of honour Sri P. Bala Kiran, IAS, District Collector, Kannur district, interacting with TV media.



Fig 13: A group photo of seminar participants.



Fig 14: A view of the audience during the seminar.



Fig 15: Valedictory address by chief guest Prof. E.A. Narayana, Vice-Chancellor, Andhra University, Visakhapatnam.



Fig 16: Felicitation of guest of honour, Dr. K. Satyanarayana Rao, Ex-Director, IWST, Bengaluru.



Fig 17: A view of the participants during the field visit to Coringa Wildlife Sanctuary, Kakinada.



Fig 18: A view of the board-walk during the field visit to Coringa Wildlife Sanctuary, Kakinada.



Fig 19: Post-seminar cultural programme.



Fig 20: Post-seminar cultural programme.



List of participants

| National Seminar on 'Conservation, Restoration and Sustainable Management of Mangroves in India', 15-17 June, 2016, Visakhapatnam | | | |
|--|----------------------|----------------------|--|
| S. No | Name | Designation | Address for Communication |
| 1 | CSV LAXMI DEVI | RS | DR. VD KRISHNA GOVT. DEGREE COLLEGE, VISAKHAPATNAM |
| 2 | DR. YVK DURGA PRASAD | LECTURER | DR. VD KRISHNA GOVT. DEGREE COLLEGE, VISAKHAPATNAM |
| 3 | K BRAMARAMBIKA DEVI | RS | DR. VD KRISHNA GOVT. DEGREE COLLEGE, VISAKHAPATNAM |
| 4 | DR GRS REDDY | DIRECTOR IFB HYD | IFB, HYDERABAD |
| 5 | GOVINDA RAO VELAMALA | RS | MLR, AU |
| 6 | DR. MUDDULA KRISHNA | RS | MLR, AU |
| 7 | GARIMA SHARMA | RS | INDIAN MARITIME UNIVERSITY |
| 8 | BHASKARA RAO DOKKALA | RS | ANDHRA UNIVERSITY |
| 9 | DR. M JAYANTHI | PRINCIPAL SCIENTIST | CIBA, CHENNAI |
| 10 | DR. G VIJAYA LAKSHMI | ASST. PROFESSOR | GITAM UNIVERSITY, VIZAG |
| 11 | DR. R. RAGHU PRAKASH | PRINCIPAL SCIENTIST | CIFT, VIZAG |
| 12 | DR. U SREEDHAR | PRINCIPAL SCIENTIST | CIFT, VIZAG |
| 13 | DR. G RAJESWARI | PRINCIPAL SCIENTIST | CIFT, VIZAG |
| 14 | JOSEPH UDAY RANJAN | RS | ANDHRA UNIVERSITY |
| 15 | DR. B CHANDRA KUMAR | DST YOUNG SCIENTIST | ANDHRA UNIVERSITY |
| 16 | DR P SUVARNA RAJU | ASSOCIATE LPROFESSOR | CHAITANYA ENGINEERING COLLEGE, CHIRALA |
| 17 | DR. RAKESH SAVARA | RS | ZOOLOGY DEPT, ANDHRA UNVIERSITY |
| 18 | PATTASI JAYA | LECTURER | GOVT. DEGREE COLLEGE, CHODAVARAM |
| 19 | DR. JAGADEESH TMAK | CHIEF MANAGER | ITC LTD, BADRACHALAM |
| 20 | DR. K RAMESH BABU | ASST. PROFESSOR | MLR, AU |
| 21 | KOMMURI PAVAN KUMAR | RS | ANDHRA UNIVERSITY |
| 22 | MUGADA NARESH | RS | ANDHRA UNIVERSITY |
| 23 | K ANANDA RAJU | RS | GITAM UNIVERSITY, VIZAG |
| 24 | DR. V SASI KALA | LECTURER | DR. VD KRISHNA GOVT. DEGREE COLLEGE, VISAKHAPATNAM |
| 25 | DR CH SAI BINDU | RS | DR. VD KRISHNA GOVT. DEGREE COLLEGE, VISAKHAPATNAM |
| 26 | DR J RATNA GRACE | READER | DR. VD KRISHNA GOVT. DEGREE COLLEGE, VISAKHAPATNAM |
| 27 | DR. P SREEVANI | LECTURER | DR. VD KRISHNA GOVT. DEGREE COLLEGE, VISAKHAPATNAM |
| 28 | SULAKSHNA MADDALA | RS | ANDHRA UNIVERSITY |
| 29 | N B SIVA PRIYA | DST-INSPIRE FELLOW | IFGTB |
| 30 | Y S GUPTA | AGM | NTPC, VISAKHAPTAM |
| 31 | DR. B VIJAYA KUMAR | DFO | AP FOREST DEPARTMENT, VIZAG |
| 32 | Y SUDHAKAR GUPTA | TOURISM DEPT | VIZAG |
| 33 | K SIMTRA DEVI | DPRO | VIZAG |

| | | | |
|----|--------------------------|--------------------------------|---|
| 34 | PROF. S. HARA SREERAMULU | PROFESSOR | ANDHRA UNIVERSITY |
| 35 | DR. B. MADHUSUDAN RAO | PRINCIPAL SCIENTIST | CIFT, VIZAG |
| 36 | N MOHAN KRANTHI, IFS | GCR, IWST | BANGLORE |
| 37 | DR. RAVISHANKAR TUPPALI | INTERNAL CONSULTANT | KAKINADA |
| 38 | P MEKRO, IFS | REGIONAL CHIEF | BHUBANESWAR |
| 39 | DR MS SINGH | EX. PCCF | GUJARAT |
| 40 | SURENDRA KUMAR, IFS | DIRECTOR | BANGLORE |
| 41 | DR ARAVIND G UNTAWALE | EXEC. SECRETORY | NIRMALA SAGAR SOCIETY, GOA |
| 42 | PROF. G. GNANA MANI | PROFESSOR | ANDHRA UNIVERSITY |
| 43 | DR. KS RAO | RETD. DIRECTOR | BANGLORE |
| 44 | K RAVICHANDRAN | CF | A&N ISLANDS |
| 45 | DR. ANIL KUMAR SETHY | SCEINTIST - D | IWST, BANGLORE |
| 46 | DR. B NAGARAJAN | SCIENTIST F | IFGTB, COIMBATORE |
| 47 | KS VENKATA RAMANAN | SCIENTIST B | IFGTB, COIMBATORE |
| 48 | DR. ANIMESH SINHA | SCIENTIST E | IFP, RANCHI |
| 49 | PROF. K KATHIRESAN | DEAN & FACULTY | ANNAMALAI UNIVERSITY |
| 50 | DR. SA ANSARI | DIRECTOR | IFP, RANCHI |
| 51 | SESHAGIRI RAO SATTIRAJU | AGM | NTPC, VISAKHAPTAM |
| 52 | PROF. DE BABU | PROFESSOR | ANDHRA UNIVERSITY |
| 53 | JESMI DEBBARMA | SCIENTIST | CIFT, VIZAG |
| 54 | MAHENDRA KUMAR K PATEL | MANAGER | GUJARAT |
| 55 | M MALLIKARJANA RAO | RS | ANDHRA UNIVERSITY |
| 56 | DR U PRAKSAM | DIRECTOR | RFRC, JABALPUR |
| 57 | DR. N RAMA RAO | SCIENTIST RETD | VIZAG |
| 58 | CH LALALITHA | LECTURER | DR. VD KRISHNA GOVT. DEGREE COLLEGE, VISAKHAPATNAM |
| 59 | PROF. AJ SOLOMON RAJU | PROFESSOR | ES DEPT. ANDHRA UNIVERSITY |
| 60 | HARSA BARDHAN | RS | NIO, VIZAG |
| 61 | VALLURI RAVI KUMAR | ASSOCIATE PROFESSOR | VIZAG |
| 62 | T GOPAL | ENVIRONMENTAL ARCHITECTURE | VIZAG |
| 63 | L SHIVAJI | | VIZAG |
| 64 | DR. PJ SUDHAKAR | ADDN. DIRECTOR | VIZAG |
| 65 | DR. VV PRASADA RAO | ILNA | VIZAG |
| 66 | N VASUDEVAN | CCF MANGROVE CELL | FOREST DEPT, MAHARAISTRA |
| 67 | DR. K THULASI RAO | STATE PROJECT CO- ORDINATOR | EGREE, KAKINADA |
| 68 | GADDEYA GANDIPILLI | RS | BOTANY, ANDHRA UNIVERSTIY |
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