



Innovation and technology have revolutionized forest monitoring, enabling countries to track and report on their forests more effectively. A total of 13.7 billion tons of carbon dioxide forest emission reductions or enhancements have been reported to the United Nations Framework Convention on Climate Change through transparent and innovative forest monitoring.

The theme for International Day of Forests 2024 is Forests and Innovation: New Solutions for a Better World.

The battle against deforestation requires new technological advancements. With 10 million hectares lost annually due to deforestation and approximately 70 million hectares affected by fires, these innovations are essential for early warning systems, sustainable commodity production, and empowering Indigenous Peoples through land mapping and climate finance access.

Additionally, ecosystem restoration, including reforestation efforts, can significantly contribute to climate mitigation and enhance food security while pushing the boundaries of sustainable wood products and enhance food security while promoting sustainable wood products.

With this mandate the Department of Forest and Climate Change, Chhattisgarh celebrated the "International Day of forest 2024"

## Inauguration





The Program started with the lighting of the lamp by the Chief guest of the event Shri Ashok Masih, Retired IFS of 1971 batch. Shri Arun Kumar Pandey, IFS, APCCF (Development & Plan) introduced Shri Ashok Masih to the audience. Shri Ashok Masih is age wise the oldest surviving IFS Officer of Chhattisgarh. He got retired in the year 2000 as APCCF (Production). He has also served as CCF Land Management. He has served mostly in Madhya Pradesh. In Chhattisgarh he has served as DFO, Raigarh and Bilaspur. He is popularly referred to as living legend in the Indian Forest Service of Chhattisgarh. He has been a source of Inspiration for many officers due to his positive approach. His innovative ideas and the zeal to be updated in technology has been phenomenal.

The lamp lighting was followed by the welcome of the Chief Guest Shri Ashok Masih, Retd. IFS, Shri Manoj Kumar Pingua, Additional Chief Secretary, Govt of Chhattisgarh, Dept of Forest & Climate Change, Smt. Shikha Rajput, Secretary, Govt of Chhattisgarh, Dept of Forest & Climate Change, Shri Amarnath Prasad, Secretary, Govt of Chhattisgarh, Dept of Forest & Climate Change and Dr. R. K. Singh Retd. PCCF, Shri Rakesh Chaturvedi Retd. PCCF etc.

### **Welcome Address by PCCF & HOFF Shri Shri V. Sreenivasa Rao, IFS**

PCCF & HOFF Shri Shri V. Sreenivasa Rao, IFS in his welcome address welcomed all the guest and acknowledged the presence of many senior IFS officers, who have retired from their services but are still actively available to guide the current officers as and when needed. He shared that Chhattisgarh is the only state, which has done phenomenal work in the field of minor forest produce, in terms of collection and processing. He also mentioned that Chhattisgarh is the only state with the active working plan on MFP. He appreciated the efforts of Shri R. K. Singh for working on the Vision Document 2047.

He elaborately talked about the need of innovation and technology in the protection and conservation of forests. Although the Department of Forest & Climate Change have been adopting the technologies from time to time, now it is the time to think about the latest innovation to combat Climate Change and protect forests. He acknowledged the schemes which have given strength to the vision of Forest Development like the Kasan Vriksh Sampada Yojana, TOF, Drone Monitoring etc. He discussed about the ongoing discussions about the Carbon Credits with pioneer institutes of national importance. The eco-restoration policy of Chhattisgarh and the formation of Ecotourism board of Chhattisgarh are also in progress.

He appreciated the efforts by the Divisional Forest officers on applying drone technology for Elephant monitoring. He also insisted on using new technologies for evaluation of ecological services and green GDP and adopting better practices for mitigation and adoption for Climate Change along with using Community forest resources as Chhattisgarh is the foremost and the leading state in Minor Forest Processing and collection. Wildlife Management is also improved in the series of years. Preparation of DPR has also improved with the use of advanced technology. There have been improvement in quality planting materials which have subsequently improved the survival of plants. He concluded with a suggestion to strengthen the relation between the community and the forest to improve the methods for the protection of forests.



**Speech by Shri Manoj Kumar Pingua, Additional Chief Secretary,  
Government of Chhattisgarh, Department of Forest & Climate Change**

Shri Manoj Kumar Pingua addressed the gathering by focusing the attention of importance of Conservation and Protection of forests at this important day. He said that with a scenario of increasing pressure on the Forest due to negative impact of Climate Change, we have to understand the importance of being aware about our crucial role towards the conservation and protection of forest. We have to shift our focus towards the social and financial progress of tribal population in order to decrease their dependency on the forest.



He mentioned that through over 7000 forest-based Self Help Groups, the community has been actively collaborating with the Forest Department to foster their development. However, he emphasized the importance of remaining vigilant regarding the broader scope of the issue. Over the past five decades, the Joint Forest movement has yielded positive outcomes. With the introduction of the Forest Rights Act, he expressed optimism that the outcomes will be even more significant in the future.

Chhattisgarh is leading state for disbursing Community Forest Resource Management Rights. Till date more than 3900 Gram Sabha have been given rights for more than 18000 sq. meters of forest for Protection, conservation and management and good results are being observed. Apart from Social and economic aspects forests have been a centre for religious faith as the tribal strongly believe and worship the trees, soil and the forests. This way they are emotionally connected to these natural resources. I believe that this emotional bond will play an important role in the protection of the forest.

This year's theme of the International Day of Forests 2024: "Forest and Innovation: New solutions for a better world" is a ray of hope for the betterment of the forest in all respects. The department is actively working towards this integrated goal of Protection of forests using new techniques.

There are incorporation of new techniques for fire detection and fire fighting in forest. There is provision for e-auction for the sale of Forest produce, which will increase the revenue and will result in profitable dividend for the forest dwellers. He wished for the development of ecotourism to strengthen the forest of the state as it has immense possibilities. With the collaboration of local communities and state officials, a new chapter in forest conservation is set to begin, ushering in an era of safeguarded forest.

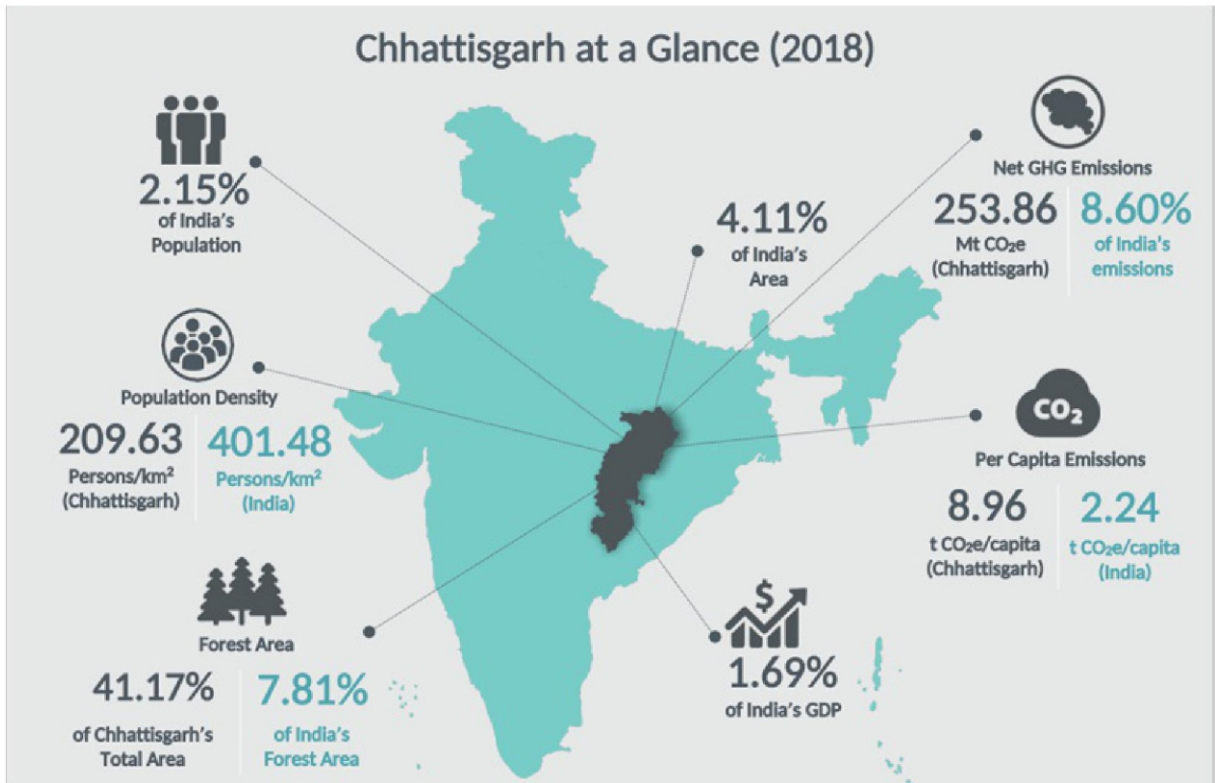
**Lecture by Dr. R. K. Singh, Retd. PCCF, Secretary,  
Chhattisgarh State Innovation Commission, Raipur**

**Topic:  
Accelerating Innovative Monitoring for Forests**

Dr. R. K. Singh, in his presentation discussed about the major international targets like Carbon Neutrality by 2070, Land degradation-neutral world by 2030 and the CBD 30x30 targets. He started with the importance of Measurement in terms of Climate Change by quoting Peter Drucker that "What gets measured gets managed".



This figure shows the glimpse of demographics of Chhattisgarh and parameters related to Climate Change with reference to India

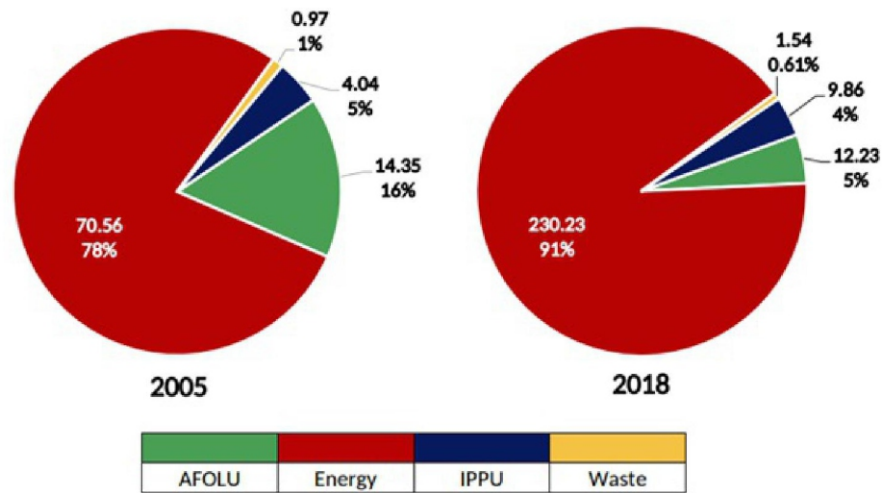


He referred to the book called Indian Forester, where there are certain examples stating the use of new technology in Forest Management, some of which have been applied in Chhattisgarh also. He explained the importance of people's involvement through Joint Forest Management, where the data of knowledge and wisdom is collected and studies deeply. The role of the forester is more of an enabler, along with the facilitator and integrator. He explained the ill effects of global warming and discussed the concerns it follows.

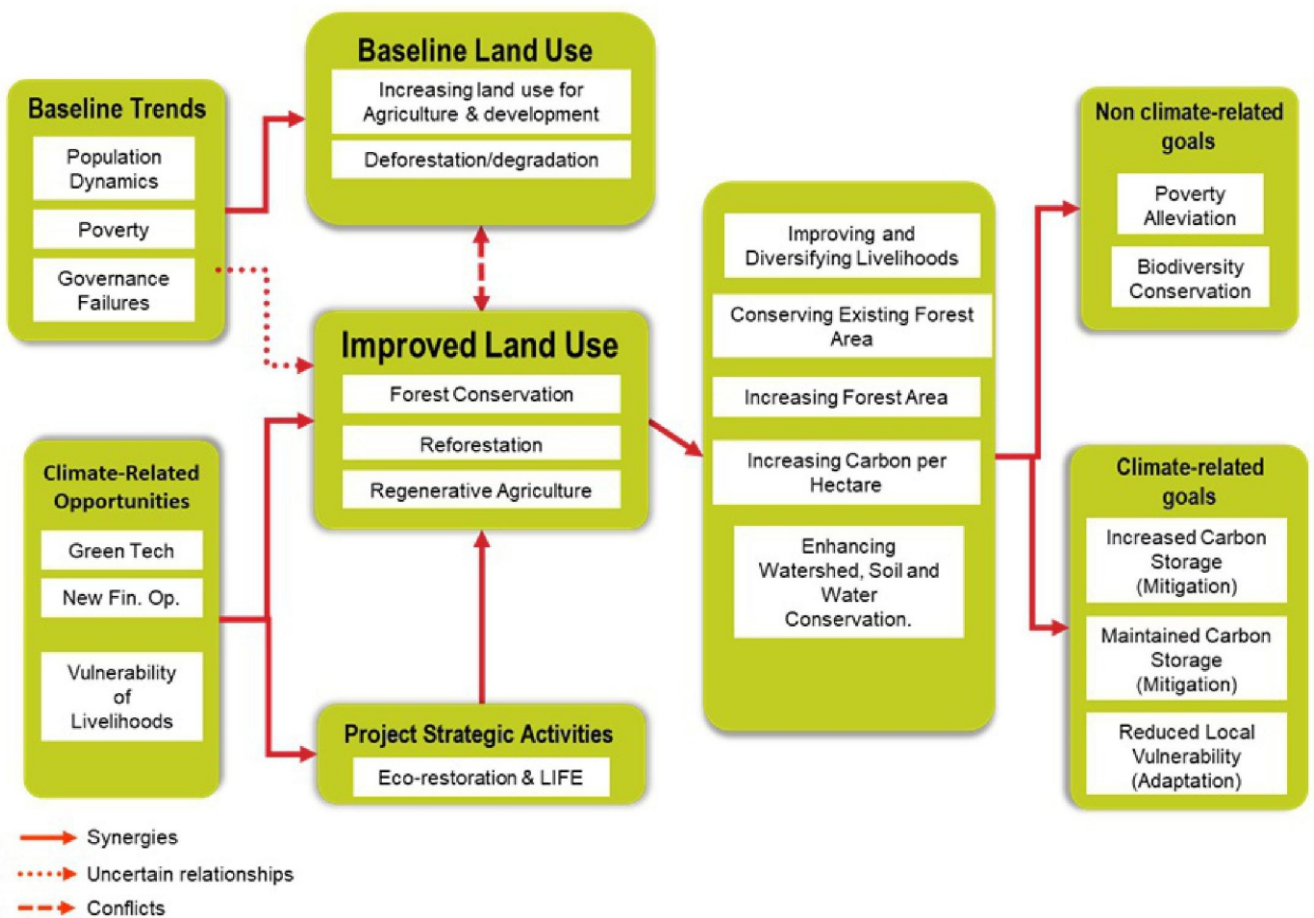


He pointed out the need of a digital platform to discuss climate change related issues. With the advent of urbanisation, more than 50% of population will be urban within the next couple of decades. HE discussed the Sector-wise Contribution (Mt CO<sub>2</sub>e) and Percentage Share to Economy-wide GHG Emissions of Chhattisgarh from year 2005 to 2018. Various sectors like Agriculture, Forestry and Other Land Use (AFOLU), Industrial Processes and Product Use (IPPU) play a contributory role in economy of the state. It was found that the maximum contribution was of the Energy sector and it has increased from 2005 to 2018.

**Sector-wise Contribution (Mt CO<sub>2</sub>e) and Percentage Share to Economy-wide GHG Emissions of Chhattisgarh in Agriculture, Forestry and Other Land Use (AFOLU), Industrial Processes and Product Use (IPPU),**



This figure shows the overview of the Climate Governance



Dr. Singh raised the questions related to the effectively monitoring all risks associated with climate change and deforestation, including degradation, deforestation, land use change, emissions reduction, loss of biodiversity, livelihoods of forest dwellers, waste management, and resource utilization etc. He showed concerns in tracking all critical pathways toward achieving the goals related to Forest protection. He raised questions related to the ways by which innovative monitoring techniques contribute to the fight against climate change and deforestation.

### Ecosystem Services

1. Provisioning Services: Food, Fuelwood, Timber, Fruit, Natural Gas, Oil, Fish, Medicinal Plants- A provisioning service is any type of benefit to people that can be extracted from nature.
2. Regulating services: pollination, decomposition, water/air purification, erosion and flood control, and carbon storage and climate regulation - A regulating service is the benefit provided by ecosystem processes that moderate natural phenomena.
3. Cultural services: non-material benefit that contributes to the development and cultural advancement of people- the building of knowledge and the spreading of ideas; creativity born from interactions with nature (music, art, architecture); and recreation.
4. Supporting Services: Ecosystems themselves couldn't be sustained without the consistency of underlying natural processes, such as photosynthesis, nutrient cycling, the creation of soils, and the water cycle.

As a continuation of the discussion Dr. Singh pointed out these important areas:

- The integrity and frequency of the data required for precision in management
- Harnessing the power of innovative technologies
- Collection of data: Satellite imagery, drone, IoT devices, etc.
- Data analytics to generate actionable intelligence and predictive management: AI
- Sharing information with the stakeholders: Blockchain

### Role of Ministry of Environment, Forest & Climate Change



The governance of monitoring can be aided by defining-

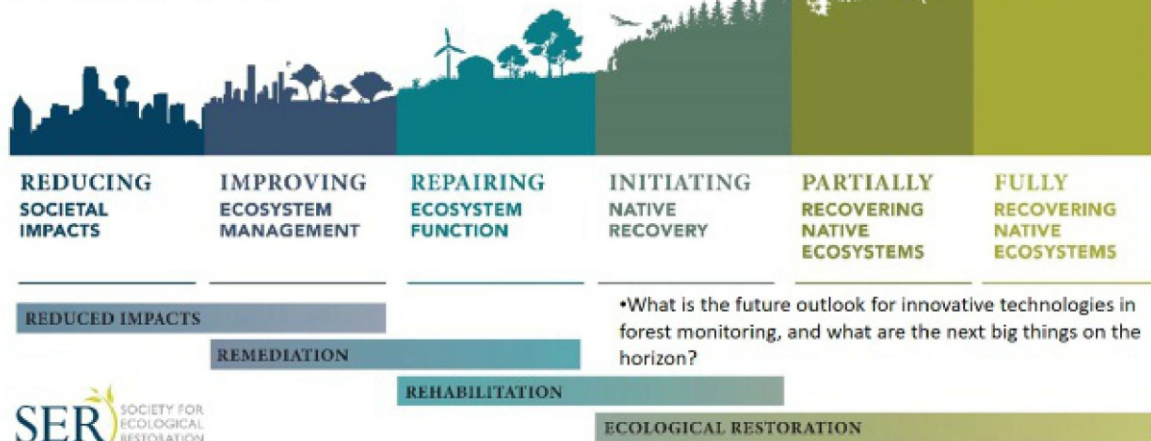
- Role of local communities
- Role of other stakeholders
- Role of citizen scientists

The researchers, technologists, and conservationists have to work together to accelerate the adoption of innovative monitoring techniques.

## THE RESTORATIVE CONTINUUM

Improving biodiversity, ecological integrity,  
and ecosystem services

Assemblage of the species that occur in  
the reference ecosystem



The summary of eco-restoration by SER (Society for Ecological Restoration)

### Future Explorations:

- Global initiatives or partnerships that could be leveraged for accessing innovative technology
- Contribution of Public-private partnerships to the funding and development of innovative forest monitoring solutions
- Policies needed to support the adoption of innovative technologies in forest monitoring and management
- Improvement of International cooperation to share data and technologies for global forest conservation and management of forests and climate globally.
- Ensuring data privacy while collecting and sharing data from monitoring activities
- The ethical considerations in using technology or monitoring, especially regarding indigenous people and protected areas
- The future outlook for innovative technologies in forest and climate monitoring, and what are the next big things on the horizon.

**Lecture by Shri S. S. Bajaj, Retd. PCCF, Director General, Chhattisgarh Council of Science and Technology, Raipur and Chairman, Naya Raipur Atal Nagar Development Board, Chhattisgarh, Nava Raipur, Atal Nagar.**

### Topic: Urban Greenery of New Raipur

Shri S. S. Bajaj discussed the importance of having urban greenery. Currently 35-36% of population resides in urban areas and by the year 2050, 50% of population will reside in urban areas. It has been notified that 25% of green area should be found in every city. This area is reduced to 12-15%. The notified green belt is usually compromised due to monetization and the master plan is disturbed.



When many cities in India are rapidly losing green cover, Naya Raipur, the administrative capital of Chhattisgarh, stands out ensuring that the city has adequate greenery. Naya Raipur's greenery is aimed to make it an ideal city with of 30% green cover under the Harihar Chhattisgarh mission. The 25-year development plan for the city envisions a 500-meter wide green belt of an area of 15.09 square kilometers surrounding the core area spanning 80.13 square kilometers. The planning authorities have reserved open spaces in its residential areas, with 30% land reserved as green in each residential area. This will act to increase the green cover of the city through tree-planting drives. The green belt acts as the breathing space of the city. The banks of all water bodies have been developed with lined trees. The development plan sets a target of 2031 to achieve the above as Naya Raipur looks to grow as a green, smart city. There are Green Fingers in the Plan which runs from North to South and from East to West. This plan ensures the joining of each sector in the green belt.

There are certain concerns like the decision of the species to be planted in urban areas. A thorough research should be done before deciding on the species to be planted. Usually there are ornamental plants planted in urban areas. He also suggested on promotion of rooftop Forestry.

