

## PROCEEDINGS OF THE INSTITUTE LEVEL MONTHLY SEMINAR HELD ON 30.01.2019 AT HIMALAYAN FOREST RESEARCH INSTITUTE, SHIMLA.

### WETLANDS: THREATS, MANAGEMENT AND REJUVENATION STRATEGIES

In the series of monthly seminar, a talk on the topic “**Wetlands: Threats, Management and Rejuvenation Strategies**” under the theme “**Managing Forests and Forest Products for Livelihood Support and Economic Growth**” was delivered by **Dr R. K. Verma**, Scientist-G & Head Forest Ecology & Climate Change Division, HFRI, Shimla on **30<sup>th</sup> January, 2019**. All the scientists, forest officers, researchers and technical staff of the institute were present during this seminar.

Dr. V.P. Tewari, Director, HFRI Chaired the proceedings of monthly research seminar. Dr. R.K. Verma, Scientist-G and officiating Group Coordinator Research welcomed the Director and all the participants present in the Conference Hall and highlighted the importance of the topic for improving the quality of research in the institute.



Dr. R.K. Verma gave precise and informative presentation on the wetlands. In the beginning, the approach behind the presentation was elaborated upon by him, followed by the details pertaining to basics related to wetland, their types, major wetlands regions of the world and some facts about wetlands. The concept of



Ramsar Convention along with different criteria for identifying the Ramsar sites was elaborated. The regional extent of the wetlands in India with respect to number and area as well number of Ramsar Sites in India having various features was also discussed. The extent of endemic and threatened flora & fauna of the wetlands of various states of India was also discussed, highlighted and elaborated upon.

The floral and faunal diversity in the Ramsar sites as well as other wetlands in mandated state of this institute i.e. Himachal Pradesh and Jammu & Kashmir were also presented along with the threats and biodiversity losses. Dr. Verma also informed about the various uses of the wetlands like tourism, carbon sequestration potential, pollution abatement, flood control and other services. He informed that wetlands have great potential for tourism and employment which

will definitely contribute to the GDP of the country. He explained that urbanization; land use change; agricultural, municipal & industrial pollution; invasive species and climate change are the main factors responsible for degradation and loss of the wetlands. He also provided the information about threat status of various aquatic flora and fauna at the international and national level. In order to protect the wetlands from further degradation, various management options like protection laws, Government initiatives, national wetland strategy, use of remote sensing & GIS can be adopted. He informed that Wetland Rules, 2017 are in place and can be useful for management of the wetlands. Himachal Pradesh State Wetland Authority (HPSWA), constituted in the year, 2017 under the aegis of H.P. Council for Science, Technology &



Environment (HIMCOSTE), is acting as a nodal agency to coordinate the Wetland activities in the state and Director, HFRI is also a member of the Expert Committee on the Wetlands in Himachal Pradesh constituted by the HPSWA.

Dr. Verma further informed about Conservation and Rejuvenation Strategies for Wetlands. These include strengthening legal and policy arrangements to conserve all wetlands, improving national wetland inventories & tracking change in wetland extent, enhancing the network of Ramsar Sites and other wetland protected areas, integrating wetlands into planning and implementation of the development agenda, implementing Ramsar guidance to achieve wise use by applying economic and financial incentives for communities and businesses, eradication of the aquatic weeds from the wetlands, desilting of the wetlands, income generation activities for local people like horticulture, bee-keeping, sericulture, fishery in ponds, dairy farming, tourism etc. to reduce the pressure on wetlands, ensuring participation of all stakeholders in wetland management, studies to improve water quality and aquatic life of the wetlands, trainings to the

action plan implementing members of wetlands and other stake holders, management plan for solid waste and invasive species in the wetlands.

During presentation, Dr. Verma emphasized upon the relevant research needs on wetlands and appropriately highlighted that how the institute can combine its efforts with other research organizations for development of conservation practices through collaborative research. He also apprised the participants about the future roadmap in this direction in the shape of the formulation of research projects on similar lines and evolve strategies for proper networking of the same.

During the course of discussion, Dr. V.P. Tewari, Director, HFRI raised the issue of conducting study for biodiversity assessment of wetlands, finding unique biodiversity of particular wetlands and enhancement of carbon sequestration potential. Sh. Sanjeev Thakur, DCF raised the issue of declaring more Ramsar Sites and their benefits with respect to management and social upliftment. Sh. Dinesh Pal, DCF, raised concern about conducting the study of wetlands in holistic manner taking into consideration all aspects of wetlands management. The apprehensions of the participants were duly replied to best of their satisfaction.

### **Outcomes of the seminar were as follow:**

#### **A. Identification of Research Needs:**

- Assessment of biodiversity status of various wetlands
- Find out cost effective and scientifically viable methods for the eradication of the invasive species causing the ecological problems in the wetlands
- Studies on carbon sequestration potential of wetlands
- Strengthen and enhance the knowledge-base about importance of wetlands and their economic benefits
- Habitat improvement to attract more number of migratory and local species of birds
- Studies on water quality, aquatic life and biodiversity conservation measures in wetlands
- Watershed management through various activities like construction of check dams, check walls, bio-engineering works, plantations, pasture development in the catchment to reduce the silt load and pollution in the wetlands

- Study on the physical, socio-economic and institutional factors influencing the condition of wetlands and their use in order to arrive at better and comprehensive management strategies for wetlands

#### **B. Formulation of Future Strategies/ Road Map:**

It was discussed and unanimously agreed that HFRI, in due course of time, may take up research projects keeping in view the followings objectives:

1. Assessment of floristic diversity along with unique flora of various wetlands
2. Find out the methods for the eradication/management of the invasive species causing the ecological problems to the wetlands
3. Studies on the carbon sequestration potential of wetlands
4. Pasture improvement and selection of suitable plant species for plantations in the catchment to reduce the silt load in the wetlands

#### **C. Networking research options identified:**

It was opined that the institute should collaborate with Himachal Pradesh State Council of Science, Technology and Environment (HIMCOSTE), Himachal Pradesh State Forest Department, other Research Institutes in H.P. and adjoining states.

#### **D. Future research directions discussed for implementation and opportunities for funding:**

The institute, in collaboration with identified agencies like HIMCOSTE, HP Forest Department etc., can take project funding to work on future strategies

In the end, the GCR thanked Dr. V.P. Tewari, Director of the institute, the presenter and others present in the seminar for actively giving their valuable inputs.

\*\*\*\*\*