



KERALA STATE BIODIVERSITY BOARD

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Carbon Neutral Initiatives

The term net-zero refers to the target of reducing the greenhouse gas emissions that cause global warming to zero by balancing the amount released into the atmosphere with the amount removed and stored by carbon sinks. This is also described as 'carbon neutrality' and sometimes 'climate neutrality'. India has committed to reduce the GHG emissions intensity by 33-35% by 2030 from 2005 levels and net zero by 2070. As environment watch groups, Biodiversity Management Committees (BMCs), has a pivotal role to play in climate adaptation and mitigation. A consultative workshop with focal theme 'Carbon neutral panchayat' was held by KSBB on 22.12.21 to develop guidelines for BMCs for a low carbon development.



The workshop conducted in a mixture of online and offline mode was attended by scientists and researchers from Universities/ Departments and Institutes. The former BMC president of Meenangadi, Wayand made a detailed presentation of the initiatives of panchayat in sector-wise adaptation and mitigation strategies to develop Meenangadi Panchayat of Wayanad district in Kerala as a 'Carbon Neutral Panchayat' by carrying out a carbon emission and sequestration analysis in the sectors of Transportation, Energy, Waste, Livestock and AFOLU (Agriculture, Forests and Other Land Use).

Training for Biodiversity Management Committees (BMCs)



The capacity building workshop for 69 BMCs of Trivandrum district was held on 21.12.2021 at District Panchayat Hall, Trivandrum. The program was inaugurated by Adv. V. K. Prasanth, MLA and presided over by Adv. D. Suresh Kumar, District Panchayat President. Various duties of Local Self Government (LSGs) in connection with environment protection and biodiversity conservation as per the Panchayati Raj act and the possibilities of exploring funding sources were explained in detail. BMCs were urged upon to submit new biodiversity project proposals through the DPC as innovative projects. All the four unofficial board members of KSBB were also present. The program was attended by 187 BMC members including President, Secretary and Convenor of BMCs, District co-ordinators of KSBB from all the 14 districts of Kerala and the Headquarter staff of KSBB.





Climate resilient practices in farming

Farmers are the biggest victim of climate change which threatens a country's agricultural growth and productivity with frequent dry spells, heat waves and erratic rainfall. At the same time, agriculture is one of the factors causing GHG emissions.

More than one quarter of the world's GHG emissions come from agriculture, forestry and land use change. Contribution of Agriculture to total C emission in India is 18 % out of which 52% is from livestock farming and 48% from crop farming. Carbon neutrality is a state of net zero carbon dioxide emissions. It means that any amount of CO₂ released into atmosphere is balanced by an equivalent amount being removed through carbon offsetting or by eliminating emissions. Net zero emissions balance the whole amount of GHG released and the amount removed from the atmosphere. Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. Agricultural fields can act as a carbon sink through sequestering greenhouse gases.

The practices resulting in the loss of organic matter can be reversed through several techniques. Low input, climate resilient type of farming encourages farmers to use low cost locally sourced inputs which reduce the use of chemical fertilizers and pesticides. Crop management practices based on periodical soil testing and assessing the organic matter content in soil helps in efficient use of fertilizers which can be reduced in a phased transition over years.

GHG –efficient farming practices include minimal soil disturbance, use of bio mulches covering soil, soil conservation, avoiding excess irrigation by adopting micro irrigation techniques and fertigation, paddy water management by alternate flooding and draining, reduced nitrogen application, avoiding stubble burning, composting farm wastes, nitrogen fixing crop rotations, zero emissions on farm machinery and equipments, shifting to renewable energy sources, using bio stimulants as catalysts, increasing amount and diversity of organic residues, use of location specific indigenous seeds, dry direct

seeding, pest and disease management through better agronomic practices and botanical extracts. Sustainable integrated farming, diversification of crops, avoiding intensive monoculture, cover cropping, green manuring, crop selection with plants that can deposit C at deeper layers (> 30cm depth), raising fast growing trees with timber value, horticultural crops like Jack and mango, homestead farming, conserving local crop varieties, including C4 plants, prescribed grazing, promoting bamboo as an agro forestry crop and conservation of biodiversity are some of the practices promoting Carbon sequestration.



Our efforts to combat climate change will have to focus on mitigation and adaptation efforts across all sectors. For agrarian countries, the task will be to ensure increased production without increasing environmental footprint of agriculture by enhancing the knowledge and skills of our farmers. While policy planning, ecological targets of carbon sequestration should be kept in mind along with crop productivity and economic factors.

Achieving major changes may be more challenging in agriculture than other sectors. Agriculture has a complicated set of objectives to consider alongside climate goals, including biodiversity, nutrition need, food security and livelihood of farming communities.

RKI Agrobiodiversity Conservation project : Trainer's Training Programme

A trainer's training programme was conducted by KSBB, as part of RKI agrobiodiversity project. State level inauguration of trainer's training programme was carried out by the chairman Dr. C.George Thomas, in Thrissur district on 1st December 2022. Board member K.V. Govindan, subject experts Dr. C. K. Peethambaran and Dr. C. K. Shaju organised the classes. The programme conducted in each of the eight districts, created awareness among farmers on how to subsequently conduct a farm school in their farmland, meant for agrobiodiversity conservation.



Farm Schools

KSBB as a part of Rebuild Kerala Initiative (RKI), is implementing the Agrobiodiversity Conservation project for flood affected districts namely, Wayanad, Malappuram, Palakkad, Thrissur, Ernakulam, Idukki, Alappuzha and Pathanamthitta. The project aims at conserving agrobiodiversity including plants, animals and aquatic forms in these remarkable agricultural land areas. In each district, 20 farm schools were organised by selected custodian farmers that constitute a total

of 160 farm schools. Through these farm schools, the custodian farmers, create awareness among other farmers in their locality, on the methods and practices followed by them in conserving agrobiodiversity and offering an opportunity to visit their farmland for familiarising the practices adopted. In December 2021, 60 farm schools had been conducted in six districts, except Wayanad and Pathanamthitta.

Alappuzha



Thrissur



Ernakulam



Malappuram



Idukki



Palakkad



Eminent Personality

Prof. Shyam Sundar Jyani known as ‘The desert man of Rajasthan’: Prof. Shyam Sundar Jyani was awarded the World’s highest award for land conservation - ‘Land for Life Award’ for his unique ‘Familial Forestry concept’ on September 28, 2021. In every two years, The United Nations Convention to Combat Desertification (UNCCD) rewards organizations and individuals on the international stage for innovation in land restoration and conservation methods that promote the well-being of the environment and communities and improve relationships with them. Prof. Shyamsunder Jyani hails from village 12 TK in Raisingh Nagar tehsil of Sriganganagar district and is currently Associate Professor of Sociology at Government Dungar College, Bikaner.

In recognition of his work, he was also awarded the Indira Gandhi National Service Scheme Award in 2012. He formulated the idea of “Familial Forestry”, which involves local families by encouraging them to plant fruit trees at their homes as a “green member”. The idea was launched at the village of Himtasar, where 120 households were part of the pilot project. The choice of fruit trees allowed the anti-desertification campaign that serve an additional purpose of improving the local villagers’ nutrition. According to Jyani, educating the families

on the benefits and the after-planting care of the trees increased the saplings’ survival rate from 20–30% to 90%. In order to further extend the campaign’s reach, he incorporated the activity of tree planting in activities like Diwali. A mobile app has also been released to increase awareness of the afforestation drive and its benefits. His efforts have seen planting of more than 2.5 million saplings in north-western Rajasthan by 1 million families across 15,000 villages by 2021, with the greenery being visible from satellite imagery as a “green wall” at the margins of the Thar Desert. Most of the plants and necessary irrigation tanks were purchased on his own expense.



Species Discoveries

Researchers from SNM College Maliankara, the M.S. Swaminathan Research Foundation, and the Payyanur College have reported two new plant species from the biodiversity-rich Western Ghats regions in Thiruvananthapuram and Wayanad districts. They have been christened *Fimbristylis sunilii* and *Neanotis prabhuii*, and the findings by the research teams have been detailed in the November and December issues of the plant taxonomy journal *Phytotaxa*.

Collected from the grasslands of Ponmudi hills, Thiruvananthapuram, *Fimbristylis sunilii* has been named after the plant taxonomist C.N. Sunil, retired professor and research guide of Botany, SNM College.

A perennial plant of the Cyperaceae family, it stands 20-59 cm tall and was collected from an elevation of 1,100 metres. *Fimbristylis sunilii* has been provisionally assessed as data deficient (DD) under the IUCN Red List categories, according to the authors M.G. Sanilkumar., E.C. Baiju, Nitya Madanan and Divya P.V., affiliated to the Research Department of Botany, SNM College.

Neanotis prabhuii is a perennial herb named after K.M. Prabhukumar, Senior Scientist at CSIR-NBRI, Lucknow, in recognition of his research on flowering plants of the Western Ghats and contributions to biodiversity conservation. Discovered in the Chembra Peak grasslands of Wayanad, it hails from the family Rubiaceae and grows on high-altitude grasslands.

Neanotis prabhuii grows up to 70 cm in length and is multi-flowered with the petals pale pink in colour, according to authors C.N. Sunil, M.G. Sanilkumar and Nitya Madanan from the Research Department of Botany, SNM College; Anilkumar and Salim Pichan from M.S. Swaminathan Research Foundation; and Ratheesh Narayanan, from the Department of Botany, Payyanur College.



Fimbristylis sunilii

Neanotis prabhuii

KSBB activities



Mrs. Reney R. Pillai, Member Secretary, KSBB had completed the deputation period of one year on 08.12.2021. She returned to the parent department as Deputy Director, Wildlife Education at Kerala Forest Department.



SBSAP



KSBB as part of developing **State Biodiversity Strategies and Action Plan (SBSAP)**, held a two day state level consultative workshop on 5th and 6th December 2021. The draft SBSAP was presented, followed by a detailed discussion on the proposed action plan.

Dr. C. George Thomas

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