

# Virtual Stakeholder Roundtable on "Nature-based Solutions: An Opportunity to be Explored" for COP26 Charter of Actions



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# THE ENERGY AND RESOURCES INSTITUTE

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# ACKNOWLEDGMENTS

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# EXECUTIVE SUMMARY

Development of technological solutions-aimed at mitigating and adapting climate change-requires substantial financial investment. Hence, implementation of these solutions is challenging for both developing and underdeveloped countries. However, sustainability can be made cost effective with adoption of naturebased solutions (NbS) which are known to provide, low-cost, long-term viable options to mitigate and adapt climate change. This is mainly realized through water conservation traditional techniques, communitybased governance of natural resources, use of organic compost, and change in environment-friendly life style, and energy efficiency. It is estimated that NbS have the ability to provide more than one-third of cost-effective climate mitigation required till 2030. Thus, NbS can potentially be a critical component of UK Government's campaign for COP 26, being a host country and given its Action Pledge around NbS.

Agroforestry has been strongly advocated along with sustainable forest management which would balance forest-based livelihood through sustainable harvesting of minor forest produce. The Forest Survey of India (FSI) has highlighted that trees outside forests (ToF) form a nearly 38% of the carbon sink in forest and tree cover of the country. Further, agro-forestry if managed in a climate smart manner has the potential of achieving two-thirds proportion of India's forestry sector Nationally Determined Contributions (NDC) targets. Agroforestry has been effective in improving farm resilience due to the increased farm diversification, self-sufficiency, and reduced production costs. In addition, community resilience can be improved, supplemented with enhanced CO2 mitigation through carbon sequestration and reduced mineral fertilizer needs as recommends the National adaptation strategies (NAS) and plans (NAP).

The webinar emphasized on Nature-based Solutions: An opportunity to be explored, to understand sectoral NbS approaches, with a special focus on forestry sector's cost effectiveness of these solutions and the policy paradigm to undertake bold actions to conserve, restore, and sustainably manage nature for climate mitigation and adaptation, besides achieving the Sustainable Development Goals (SDGs).



# PROCEEDINGS

### Welcome and Theme Setting

Dr J V Sharma, Director, Land Resources Division, TERI Dr J V Sharma on behalf of TERI and British High Commission welcomed all the panellists and the participants. Starting with an introduction on Paris Agreement, he highlighted the NDC targets accepted by India which includes country's plans to reduce its emissions intensity by 33–35% between 2005 and 2030, accelerating the use of clean and renewable energy by 40% by 2030 and increasing carbon sink through afforestation efforts. Dr Sharma focused on the potential of NbS for mitigating and adapting climate change, particularly in agroforestry sector and motivating farmers to adopt the effective practices. He emphasized on the examples of carbon finance projects in agroforestry sector lead by TERI in Punjab and Gujarat, he further said that such programmes need support of Government of India to facilitate and generate better carbon markets. He concluded the speech by highlighting country's potential of generating INR 50,000–60,000 crore through carbon finance mechanism as an additional income to farmers and mitigating climate change.

### **Keynote Address by the Chair**

Mr Subhash Chandra, In charge – Director General of Forests and Special Secretary and CEO (CAMPA), Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India

Mr Subhash Chandra in his key note address said that NbS are the actions to protect, sustainably manage, and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, and provide with human well-being and biodiversity benefits.

He mentioned that technological solutions for mitigating and adapting climate change are expensive and it is difficult for developing and poor countries to implement while NbS could provide cost-effective, sustainable, and long-term options to mitigate and adapt climate change, mainly through adoption of measures such as traditional techniques of water conservation, communitybased governance of natural resources, use of organic compost, energy efficiency and change in environment-friendly life style.

He highlighted on successful implementation of watershed management programmes over 60 million hectares for the past few decades that have resulted in conservation of soil and water across length and breadth of the country. It has led to enhancement of soil moisture and also soil organic carbon in many instances. He said that the watershed approach has evolved over several national programmes such as Drought prone Area Programme, National Watershed Development Project for Rainfed Areas, Pradhan Mantri Krishi Sinchai Yojana - Watershed component (PMKSY - Watershed), with decades of hard work. These programmes have induced ecosystem resilience and empowered local communities to successfully tackle vagaries due to uneven monsoon in India. He mentioned that local cultural practices imbibed by the communities over generations, are protecting sacred groves, grasslands and waterbodies, which are acting as carbon pools, contributing to a global cause.

India has already identified priorities to tackle climate change under Paris Climate Agreement. Further, he emphasized, afforestation approach will involve large-scale plantation on non- forest land. Agroforestry in India is the backbone of ToF. According to FSI's latest assessment in 2020, ToF covers 8.94% of total geographic area of the country which is about 9.5 million hectares (Mha). The total forest and tree cover is 80.73 Mha, which is 24.56% of the total geographical area of the country. He

said that National Forest Policy, 1988 aspires for 33% forest cover in the country, however, there is limited scope of increasing the area under natural forests by additional 8% to achieve the targeted forest cover. Ideally total culturable non-forest area (CNFA) as per ISFR (2003) which is about 218.8 Mha can become potential area to enhance forest and tree cover of India through agroforestry. The potential to achieve this target lies in agroforestry, an emerging NbS. Agroforestry has potential to contribute towards achieving about two-thirds of India's forestry sector NDC.

He said that presently, agroforestry fulfils over 80% of India's domestic timber demand and in this regard, the Draft national Forest Policy, 2018 MoEFCC advocates "grow more wood and use more wood" which will in turn sequester more carbon. Based on the above, it can be found that there exists potential for growing wood-based companies, developing structured markets, and evolving a friendly regulatory regime for felling and transit. Due to major constraints such as a lack of regulatory regime for felling and transit of agroforestry species, a lack of structured market, etc, that growth of agroforestry in India has been limited. He also discussed the transit rule, which is important for chain of custody because an increasing number of companies are purchasing certified timber, which should not cause problems for farmers and traders. Permission from the Divisional Forest Officer in this regard becomes decisive at all levels, from local to national.

Attention should be given to R&D activities to produce quality planting material and high-yielding clones. Farmers should be sensitized about the use of native species. He focussed on the fact that the National Agroforestry Policy (NAP) 2014 asks states to identify 20 most important tree species preferred by the farmers, to be exempted from the regulatory regime, where he quoted the case of Goa where the tree growers and farmers are exempted from commercial trade of important tree species grown on private lands such as shisham, and sandalwood by Goa state government.

He further opined agroforestry as an NbS which can supplement farm income by harvesting the timber, carbon credits in the carbon markets, enable risk reduction and contribute towards climate resilience. He also highlighted that state governments such as that of Punjab and Gujarat in collaboration with TERI, have initiated pilots to promote agroforestry and generate carbon finance through sale of carbon credits in voluntary carbon markets for farmers. Such pilots set a road map for other states in India to implement agroforestry- based carbon finance projects and improve livelihood of farmers.

Finally, he appreciated and thanked TERI and British High Commission for organizing this stakeholder roundtable platform where the findings would be of use to Government of India in the context of forthcoming COP 26 of UNFCCC.

### Presentation by TERI on NbS for COP26 Charter of Actions

- Dr J V Sharma, Director, Land Resources Division, TERI
- Dr Yogesh Gokhale, Senior Fellow, Land Resources Division, TERI
- Ms Priya Sharma, Research Associate, Land Resources Division, TERI

Dr Yogesh Gokhale made a presentation on Nature based Solutions: An opportunity to be explored where he highlighted NbS as an effective climate change mitigation tool as it can provide 30% of cost-effective mitigation needed by 2030 to stabilize warming to below 2°C. He talked about the global distribution of nations that include NbS in their NDCs and said that most of the countries are following NbS to achieve mitigation and / or adaptation. Dr Gokhale further mentioned that NbS is one of the key themes of the COP26. He discussed various examples of NbS in Indian context like climate-resilient farming system. He emphasised on significance of agroforestry as an NbS for India and said that agroforestry has significant potential (2/3rd) to contribute towards achieving India's forestry sector NDC. He also talked about the contribution of agroforestry to human well-being and livelihood security. Dr Gokhale highlighted the issues and concerns pertaining to agroforestry sector in India such as shortage of superior planting material, rigid regulatory regime in respect of tree felling/harvesting which limit farmers' interest in agroforestry. Transit issues, limited marketing infrastructure and lack of minimum support price (MSP), to safeguard farmers from market vagaries are other factors which make farmers hesitant towards adoption of agroforestry practice. At last he talked about future actions and recommendation which includes the need to develop an accreditation system for nursery planting stock and working plans to be prepared for agroforestry, need to establish regular timber markets to ensure transparent timber trade, need to develop innovative financial mechanism for obtaining forest-based carbon finance by formulating carbon neutrality policy at national level and state level.Implementation of all these strategies and mitigation measures requires effective government involvement at various levels and stages.

#### **Roundtable Discussion**

### Moderator: Dr Prodipto Ghosh, Distinguished Fellow, TERI

Dr. Ghosh started his discussion with an anecdote demonstrating the importance of NbS, underlining that the concept of NbS is not new and has long been used to mitigate and adapt to climate change. He further mentioned the example where Delhi government is developing seven biodiversity parks in and around and the main issue is to get rid of the Prosopis juliflora which is an invasive plant introduced by British government to reclaim and enhance soil in west Rajasthan, but in course of time it has become problematic and spread to whole India. There is a need to plant local species. Dr Ghosh said that the scope of NbS is much wider than just adaptation of climate change. He further

mentioned that that there are lot of evidences about the use of NbS, however, there is very little data available about the impact of a particular species with respect to the mitigation of a particular environmental problem. This data will help the regional planner to decide which species need to grow in particular area that will help in mitigating environmental problems. Dr Ghosh also focussed on the felling and transportation permit of trees and said that it was shocking that it took 18 years for one government to address the issue of felling of trees and transit pass' —meaning, after the trees have been felled in non-forest land, the wood can be transported without permission.

### Dr A Arunachalam, Director, Central Agroforestry Research Institute (CAFRI)

Dr A Arunachalam talked about the benefits that can be accrued from agroforestry in terms of fuel, fodder, and fertiliser, adding that Indian Council of Agricultural Research (ICAR) was the first one to introduce agroforestry as subject in the country. He mentioned that Central Agroforestry Research Institute is the nodal agency for mapping the agroforestry areas and so far they have completed 14 agroclimatic zones where only one zone is left. He said that they are promoting agroforestry as an NbS but given the regulatory framework, ease of doing business, etc. should be made strong in the country. He said that agroforestry is the only system that is human intervened yet has been able to realize the desired results. He further added factors, such as soil fertility management, biodiversity management, and water management, reduces grazing pressure and helps as an opportunity for sustainable forest management as it reduces the deforestation, enables the afforestation and overall forest restoration is ensured through agroforestry practices. He further said that through agroforestry, agro-pastoralism can also be promoted. Dr Arunachalam opined that agroforestry has the potential to effectively restore the ecosystem and increase the entire ecosystem health and appreciated the carbon finance project lead by the TERI in two states of Punjab and Gujarat, mentioning that these projects can act as a road map in future for the other states. He also highlighted the fact that agroforestry as a subject is often ignored by central ministries despite being a part of having a national policy.

### Mr Ram Kumar, IFS, APCCF Social Forestry, Gujarat Forest Department

Mr Ram Kumar focused on the concept of social forestry and importance of capacity building to farmers which has helped in having about 39.75 crore ToF area in Gujarat. He talked about decentralised nurseries and Van Chetna Kendra in each districts having infrastructure for capacity building for promotion of agroforestry in the state. He said that micro planning at village level, distribution of 8 crore seedlings to farmers during Van Mahotsav and distribution of 1.5 crore clonal eucalyptus to farmers at subsidized rate had helped farmers in increasing the plantations.

#### Mr Saurabh Gupta, APCCF, Punjab Forest Department

Mr Saurabh Gupta started his discussion with special focus on agroforestry in Punjab and said that agroforestry is an economic decision taken by a farmer who is planting species on private land. He mentioned that landscape of Punjab is highly productive, agriculture is intensive and 300% of land use is agricultural. He focussed on the four important parameters, namely economic benefit, able to sell crops, quality planting stocks, and short rotation which every species need to pass in order to get adapted by the farmers. He said that Eucalyptus and Populus (Poplar Tree)are the two tree species which have passed all these parameters. He highlighted that in Punjab there are no transit rules and no felling permits required for the agroforestry areas. He stated that in Punjab, IT technology is being used to reach out to farmers, and an android application has been developed wherein the forest guards visit each and every farmer to register their agroforestry produce as well as plant species and plantation models such

as periphery plantation and low density plantation resulting in a geo-location database for each farmer. He further mentioned that through this robust database system, authorities came to know that in Shivalik region there is good agroforestry system done by the farmers which has resulted to venture out tripartite agreement with TERI and VNV Advisory Services Pvt. Ltd. o generate carbon finance for the farmers who have planted species in the region to supplement income. He said that the carbon project like this can make the agroforestry much more attractive.

### Mr Sandeep Roy, Director, VNV Advisory Services Pvt. Ltd.

Mr Sandeep Roy started his discussion by mentioning the fact that India is a country of 1.3 billion where about 40% people are connected to forest and its periphery for their survival and livelihood. He said that NbS is a cost effective and important tool for the whole society. He made a point that there is need of special focus on social forestry by not neglecting the forestry factor and emphasised on social parameter for deliberating the whole purpose of NbS.

### Mr Anirban Ganguly, Research Specialist, South Asia Research Hub, British High Commission

Mr Anirban said that NbS plays a major role in mitigating climate change and talked about the project which UK government is supporting to enhance climate resilience. He appreciated the importance of NbS and said that investment is needed towards the same.

### Vote of Thanks

### Mr Siddharth Edake, Fellow, Land Resources Division, TERI

The webinar session ended with the vote of thanks, proposed by Mr Siddharth Edake.

# **KEY TAKEAWAYS**

The key takeaways from the session, as highlighted by the panellists were as follows:

- Agroforestry has about two-thirds potential to contribute towards achieving India's forestry NDC target, hence it should be promoted.
- To increase agroforestry practice there is a need to provide MSP by incorporating carbon incentive for agroforestry timber species so as to safeguard the interests of the farmers from the financial loss due to market failures.
- There is a need to build capacity of the farmers and also to spread awareness regarding the different schemes and policies with respect to agroforestry.
- Need to establish regular timber markets established to ensure transparent timber trade and prevent exploitation of farmers.
- Quality planting material should be made available. There is a need to produce high-yielding varieties for promoting the agroforestry production.
- Institutional strengthening and coordination between concerned ministries of the central and state governments, governmental agencies, NGOs, farmers, and private sector should be strengthened.
- The implementation of the National Agroforestry Policy, 2014 at ground level should be done with priority.
- Provisions for harvesting and transportation of agroforestry produce should be made less stringent. Transit regulation is very important. Transit regulation is a key for chain of custody since more and more companies now purchase certified timber. This should not harass farmers and traders. Permission by DFO should be respected throughout the country and for the same the Government of India should come up with a notification.
- The model adopted by Punjab government where no transit rules and no felling permits required for the agroforestry areas can work as role model for the other states to develop the same.
- Recent initiative by Goa government for promoting the plantation of commercial species on private lands also has potential for replication in other parts of India.
- Carbon neutrality policy, carbon finance mechanism for agroforestry tree plantations, and minimum support price mechanism at national level for agroforestry tree species will motivate farmers to grow more trees. It will help India in achieving forestry sector NDC to create additional carbon sink of 2.5–3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030.

# **ABOUT COP26 CHARTER OF ACTIONS**

The 26th UN Climate Change Conference of the Parties (COP26), to be held from 1–12 November 2021 in Glasgow, will aim to mobilize the action on mitigation, adaptation, and resilience, and strengthen the narrative for better alignment with sustainable development goals. COP26 is to deliberate on four key goals: (i) Secure global net zero by mid-century and keep 1.5 degrees within reach; (ii) Adapt to protect communities and natural habitats; (iii) Mobilise finance; and (iv) Work together to deliver. COP26 will bring together countries, companies, civil society, and citizens on a common platform to work towards to a more sustainable future through adaptation, mitigation, finance, and collaboration. There is a need to address the developmental deficit in emerging economies such as India while simultaneously taking measures to limit global warming as agreed in the Paris Climate Change Agreement. TERI is preparing a COP26 Charter of Actions which will assimilate questions and challenges posed by keys sectors in India, propose probable and sector specific options which can advance climate action and ambition in the country, and also propose a normative framework for a global agenda on climate ambition and action. The Charter is expected to be released at the COP26 in Glasgow. The discussions from COP26 would culminate in a review at a plenary session at the World Sustainable Development Summit 2022, which would assess the efforts of international climate negotiations in securing a sustainable future, and deliberate on future actions. The Charter will examine the themes of energy, clean transport, nature-based solutions, adaptation & resilience, green finance, business and industry, and equity. The Charter activities are supported by the British High Commission, Bloomberg Philanthropies, Shakti Sustainable Energy Foundation and Tata Cleantech Capital.



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