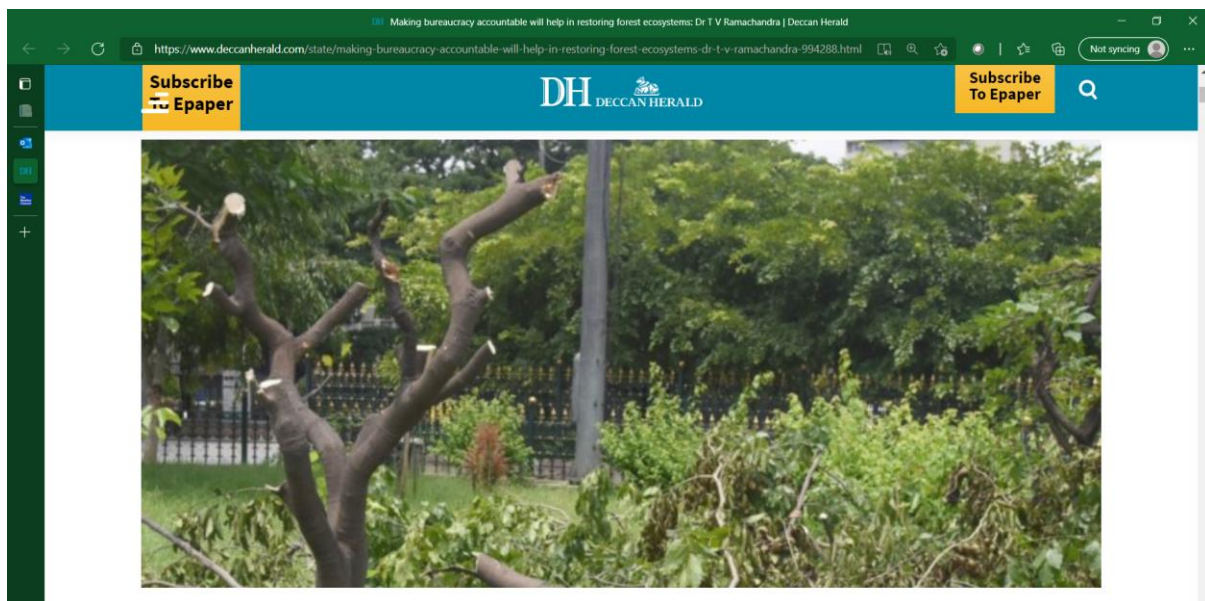


Making bureaucracy accountable will help in restoring forest ecosystems:

Dr T V Ramachandra

Some gaps in the afforestation strategies led to aggravated human-animal conflicts, says T V Ramachandra, JUN 06 2021, 01:27 ISTUPDATED: JUN 0...

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Choosing the wrong species and large-scale planting of exotic species have impacted people's livelihoods and aggravated human-animal conflicts, says T V Ramachandra of Centre for Ecological Sciences, Indian Institute of Science, Bengaluru in e-mail interview with DH (Anitha Pailoor, JUN 06 2021, 01:27 ISTUPDATED: JUN 06 2021, 03:55 IST

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Choosing the wrong species and large-scale planting of exotic species have impacted people's livelihoods and aggravated human-animal conflicts, says T V Ramachandra of Centre for Ecological Sciences, Indian Institute of Science, Bengaluru in an e-mail interview with *DH*. Excerpts:

What according to you is lacking in the Forest Department's afforestation programmes and plantation drives?

At the beginning of the 20th century, 80 per cent of the landscape in Western Ghats districts was covered in thick forests. Now the forest cover as per the Forest Survey of India--Karnataka's forest cover stands at 20.11 per cent out of 1,91,791 sq km geographical area. As per the report, the State has 4,501 sq km of very dense forest, 21,048 sq km of moderately dense forest, and 13,026 sq km open forest. The total forest cover in the State is 38,575 sq km. 17 to 20 per cent forest cover is contrary to the National forest policy of 33 per cent.

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Some gaps in the afforestation strategies are the wrong choice of species and large scale planting of exotic species have impacted people's livelihoods, aggravated human-animal conflicts, perennial streams have become intermittent or seasonal streams, there are higher instances of mudslides and landslides (frequent occurrences in Kodagu, Uttara Kannada, Chikmagalur, Shimoga etc). For example, converting evergreen forests to monoculture teak plantations in Supa taluk has deprived wild animals of fodder and water, which has led to frequent human-animal conflicts.

For instance, the occurrence of Kyasnoor Forest Disease or monkey fever disease, a zoonotic disease in Shimoga, Uttara Kannada Kyasnoor has led to the death of 200-300 persons per year. This is mainly due to the conversion of native forests (with diverse vegetation) to monoculture plantations which has deprived fauna of their food--monkeys were deprived of food and hence they started infesting humans, as monkey visited human habitations, ticks in monkeys started affecting humans.

Your recent study on the forest cover in Uttara Kannada shows a drastic decline to 48 per cent while the forest department maintains it as over 70 per cent...

The government reports do not reveal the true status of local conditions. Our work is based on detailed field and remote sensing data – pictures of the earth acquired through space-borne sensors at regular intervals. We have followed a well-established protocol of supervised classification of remote sensing data using field data. Also, the analysed remote sensing data was validated through accuracy assessments. Probably audit by CAG would bring out anomalies in afforestation.

It is unfortunate, that the custodians of forests have failed miserably in protecting forest ecosystems. Inclusion of all vegetation under the guise of 'tree cover' will only distort the actual status of forests.

Forests form vital ecosystems in sustaining water in aquatic ecosystems. Water sustenance in streams and rivers

Forests form vital ecosystems in sustaining water in aquatic ecosystems. Water sustenance in streams and rivers depends on the integrity of the catchment, as vegetation helps in retarding the velocity of water by allowing impoundment and recharging of groundwater through infiltration. As water moves in the terrestrial ecosystem, part of it is percolated, while another fraction gets back to the atmosphere through evaporation and transpiration. Forests with native vegetation act as a sponge by retaining and regulating water transfer between land and atmosphere.

The mechanism by which vegetation controls flow regime is dependent on various bio-physiographic characteristics-- type of vegetation, species composition, maturity, density, root density and depth, hydro-climatic condition, etc. Roots of vegetation help in binding soil, improving the soil structure by enhancing the stability of aggregates that provide habitat for diverse microfauna and flora, leading to the higher porosity of the soil, thereby creating the conduit for infiltration through the soil.

An undisturbed native forest has a consistent hydrologic regime with sustained flows during lean seasons. Native species of vegetation help in recharging groundwater, mitigating floods and other hydro-ecological processes.

Hence, it necessitates safeguarding and maintaining the existing native forest patches and restoring existing degraded lands to sustain the hydrological regime, which caters to biotic (ecological and societal) demands.

A comparative assessment of people's livelihood with soil water properties and water availability in sub-catchments of four major river basins in the Western Ghats reveals that streams in catchments with > 60 per cent vegetation of native species are perennial with higher soil moisture. The higher soil moisture due to water availability during all seasons facilitates farming of commercial crops with higher economic returns to the farmers, unlike the farmers who face water crisis during the lean season. In contrast to this, streams are intermittent (6-8 months water) in catchments dominated by monoculture plantations and seasonal (4 months, monsoon period) in catchments with vegetation cover lower than 30 per cent. Also, lower instances of Covid-19 in villages with native forests highlights the role of ecosystems in maintaining the health of biota.

The need to maintain native vegetation in the catchment and its potential to support people's livelihood with water availability at local and regional levels is evident from the revenue of Rs 2,74,658 ha-1 yr.-1 (should we explain what this is)(in villages with perennial streams and farmers growing cash crops or three crops a year due to water availability), Rs 1,50,679 ha-1 yr.-1 (in villages with intermittent streams) and Rs 80,000 ha-1 yr.-1 (in villages with seasonal streams).

Crop yield is higher in agriculture fields due to efficient pollination with the prevalence of diverse pollinators in the vicinity of native forests. The study emphasizes the need for maintaining the natural flow regime and prudent management of watershed to i) sustain higher faunal diversity, ii) maintain the health of the water body and iii) sustain people's livelihood with the higher revenues. Hence, the premium should be towards conserving forests with native species to sustain water and biotic diversity in the water bodies, which are vital for food security. There still exists a chance to restore the lost natural ecosystems through appropriate conservation and management practices to ensure adequate and clean water for all.

What should be the way forward to restore ecosystems?

Just providing proper protection would help. For example, in a sacred grove, fencing in 1991 has helped in the improvement, evident from the increase of species (species diversity 7.42 to 9.28), when monitored after two decades, highlights protecting degraded forest patches with fencing (or trenches as in Sagar Taluk) would help in the rejuvenation of forests.

Is universalisation of plantation programmes an issue?

Unscientific approaches with colonial mindset bureaucracy are the prime reasons as the agenda is to utilise allocated funds rather than to rejuvenate degraded forest patches. Large scale pilferage of funds and lack of accountability and transparency has resulted in the pathetic status of forests in the state. Only annual reports of the forest department provide a rosy picture of afforestation or tree cover which is contrary to the ground conditions.

What are your views on the implementation of the compensatory afforestation programme?

Compensatory Afforestation Fund Management and Planning Authority (CAMPA) was framed by the Government of India, with an intention to conserve nature and its natural resources amidst the various development works. The objective of the Act could be fulfilled only by utilising the CAMPA funds only for the purpose only for afforestation and wildlife conservation activities.

CAMPA could be made effective by (i) involving village forest committees in the implementation of afforestation – nurturing saplings in people’s nurseries, (ii) geotagging of the planted sapling and make the data available online, (iii) constitution of CAMPA monitoring committee to advice on the choice of location-specific native species, monitoring of afforestation endeavour progress, (iv) use of latest technologies taking advantages in the advancement of geoinformatics – availability of high-resolution spatial data, (v) annual aerial monitoring of afforested forest patches – through drones and the data available in the forest department publicly accessible data/information portals. Making bureaucracy accountable with transparency in the governance, involving people at decentralised levels will help in restoring forest ecosystems.