

ENVIRONMENTAL DEGRADATION AND BIODIVERSITY LOSS IN THE WESTERN GHATS: CONCERNS FOR CONSERVATION AND SUSTAINABILITY

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Abstract

Western Ghats is one of UNESCO's World Heritage Sites. The heritage Status has implications on development and prescribes creation of additional buffer zones around it. Western Ghats also is the home for several endangered species. It is also a treasure trove of bio-diversity. The government has appointed an expert committee under the chairmanship of Madhav Gadgil to look into the various issues of protecting the Western Ghats. The committee has made several recommendations for protecting the bio-diversity of Western Ghats. Another committee under the chairmanship of Kasturirangan was appointed in 2012 to look further into the issues of protecting the environment. The implementation of the recommendations of the committees will go a long way in protecting the environment and biodiversity of the region.

Keywords: *Western Ghats, Bio-diversity, Environment, Sustainable Development, Gadgil Committee, Kasturirangan Committee*

Introduction

The Western Ghats, also known as Sahyadri Hills, are well known for their rich and unique assemblage of flora and fauna. The Western Ghats is home to thousands of animal species including at least 325 globally threatened species. It is a treasure house of exotic varieties of plants and the major vegetation types are tropical evergreen forests, moist deciduous forests, dry deciduous forest, scrub jungles, Sholas, Savannas including high rainfall Savannas, Peat bogs and Myristica swamps.

The Western Ghats is a hill chain extending from 80°N to 21°N latitude and stretching between 73°E and 77°E longitude. The Western Ghats runs through six states in India extending from the Dang District in Southern Gujarat to Kanyakumari in Tamil Nadu. All the major rivers flowing through the Southern States originate in the Western Ghats. It is one among the four watersheds of India and form the catchment area for complex riverine drainage systems that drain almost 40 percent of India. Western Ghats harbours some of the most bio diverse, endangered and unique habitats in the peninsular India. It is an

area of rich biodiversity exhibiting high degree of endemism.

Even though Western Ghats holds only less than 6 percent of the land area of India it holds more than 30 percent of all plant, fish, bird, hepato-fauna and mammal species in the country. Scientist had drawn attention to the distinct flora of the Western Ghats. Four thousand species of flowering plants are known from the Western Ghats. The Western Ghats receive an average of 3000 mm rainfall per annum and this is one of the important reasons for the existence of wide exotic varieties of plants. It is also the home for numerous medicinal plants and important genetic resources such as wild varieties of grains (barley, rice), spices (pepper, cardamom, cinnamon etc.), and fruits (banana, jack fruit, mango and garcinias). It is also estimated that around 1500 plants are endemic to the Western Ghats.

The Western Ghats region also supports a large and diverse fauna also. The largest number of known species is birds (508), fishes (218), amphibious (126) and mammals (1370). It is to be noted a large number of species are endemic to the region. Nilgiri Tahr, Malabar Gray Hornbill, Lion

Tailed Macaque, Flying squirrel are some of the rare fauna found in the Western Ghats. Among the invertebrate groups, about 350 (20% endemic) species of ants 330 (11% endemic species) of butterflies, 174 (40% endemic) species of donates (damsselfies and dragonflies) and 269 (76% endemic) species of mollusks (land snails) are from the Western Ghats. The Western Ghats is also famous for its amphibian fauna with about 220 species of which 78 percent are endemic to the region. Out of the 225 described species of reptiles 65 percent are endemic.

Of the nearly 650 tree species found in the Western Ghats, 54 percent are endemic to the region. The Western Ghats harbours approximately 4000 species of flowering plants and it is estimated that about 1500 are endemic to the region. The biological diversity is also reflected in the cultural diversity of the people. In lot of instances their entrance is tied to the continued maintenance and sustainable use of biological resources.

Even though a lot of measures are taken for the protection, conservation and sustainable use of bio diversely many ecosystems and species are seriously threatened. A variety of reasons led to the

threatening of biodiversity in the Western Ghats. Human pressures like conversion of forests to agricultural land, growth of area under plantations like rubber, tea, oil palm, coffee, wattle and eucalyptus, construction of roads and railways, increase in the livestock population, building of hydroelectric projects and reservoirs, extraction of forest produce and forest based industries, mining, pollution due to unrestricted use of agro chemicals etc. have caused environmental degradation and biodiversity loss in the Western Ghats.

At least 20 percent of the original forest cover has lost in the last 25 years in the Western Ghats. During the past 40 years the plant and animal life in the Western Ghats has also been degraded. Many animals and plants have become extinct or are in danger of being extinct. Biodiversity loss in the Western Ghats is also linked to the human habitation in the region. Urbanization and industrial development has increased the number of people in the region. This has put extra pressure on the forest and mineral resources. An increase in the population has led to an increase in the cultivation of rice and cash crops like tea, rubber etc. These factors affect soil degradation and erosion. This change in

the land use is also detrimental to biodiversity. Increased mining activity also destroys forests. Another factor that led to the submergence of forests is the construction of various hydroelectric and irrigation projects in the Western Ghats region.

Another threat is the loss of domesticated biodiversity. Traditional farmers have developed an array of crops and livestock. Thousands of traditional crop strains and domesticated livestock are being replaced by genetically modified varieties. Construction of resorts, farmhouses and townships has resulted in the cutting of hills and modification of topography and hydrological patterns.

Rapid urbanization and industrial development are taking a toll on the fresh water species of the Western Ghats. Due to water pollution from urban sources and agricultural fields and due to over harvesting approximately 16 percent of the fresh water fish, dragonflies, damselflies, aquatic plants and mollusks are threatened with extinction. Out of the 1146 fresh water taxa assessed 1.9 percent species were found to be near threatened.

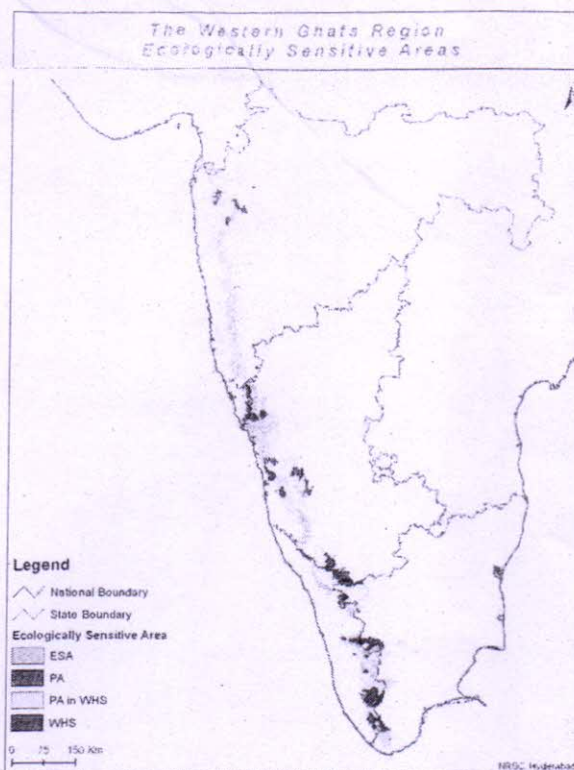
Majority of the rivers in the Western are threatened or polluted because of

industrial effluent disposal, deforestation, dam construction, sand mining and inefficient land use practices. These also led to the shrinking and sickness of rivers. It is to be mentioned that Western Ghats form one of the three important watersheds in the country.

Environmentalists and biodiversity experts increasingly recognize the social and environmental dimensions of mining now. A significant part of the mineral deposits fall in eco sensitive regions and profuse river systems. Mining of bauxite, establishment of quarries, sand mining etc. have initiated environmental degradation in the region due to biodiversity loss, soil erosion, deforestation, noise and air pollution and wasteland generation.

An analysis of the different varieties of species indicates that 332 globally threatened species occur in the Western Ghats. Out of the 332 threatened species found in the Western Ghats 129 are vulnerable, 148 are endangered and 55 are critically endangered. Studies have shown that 229 plant species, 15 bird species, 52 amphibian species, one fish species, four reptile species and 31 mammal species are in the threatened category.

Figure 1. Ecologically Sensitive Areas of Western Ghats



Source: Report of the High Level working on western Ghats, 2013, Available at the India Environmental Portal at <http://www.indiaenvironmentalportal.org.in/files/HLW/G-Report-Part-I.pdf>

Government Initiatives for Conservation and Protection of Western Ghats

There were several initiatives by the government of India to stem the environmental degradation of the Western Ghats. One of the recent initiatives was the appointment of an expert panel in 2010 under the Chairmanship of Madhav Gadgil to look into the various issues of protecting the Western Ghats. The Western Ghats Ecology Expert Panel ((WGEEP) has designated the entire Western Ghats region as an Ecologically Sensitive Area (ESA). Further the committee has classified

the 142 talukas in the Western Ghats boundary into Ecologically Sensitive Zones (ESZ) 1, 2 and 3. In the ESZ-1 (high priority area) almost all development activities including mining and thermal power plant establishment are banned or restricted. Besides, it was recommended that no new dams should be constructed in the ESZ 1. The committee also suggested a change in the present system of governance in the hill ranges. It suggested a bottom to top approach and recommended an important role for Grama Sbbhas for protecting the environment in the Western Ghats Areas. Another major recommendation of the committee is the establishment of a Western Ghats Ecology Authority (WGEA) under the Ministry of environment and Forests with powers under section 3 of the Environment Protection Act, 1986. It is to be mentioned that when the report was made public it drew severe criticism from various state governments and farm organizations. The whole issue was shelved until 2012 and another committee headed by Kasturirangan was appointed to look again at the issues of the region. The committee submitted its report on April 13, 2013. Kasturirangan committee has earmarked only 37 percent i.e. about 60,000 sq.km of the total area under ESA. The committee distinguished between cultural and

natural landscapes. According to the recommendations of the committee 90 percent of the natural landscape should come under ESA. Cultural landscapes are the regions occupied by human settlements, agricultural fields and plantations. The committee recommended that the current mining in the ESA should be phased out within the next five years or at the expiry of the mining lease, whichever is earlier. No future thermal power plants and hydroelectric projects will be allowed in the region. A total of 123 villages fall under the ESA purview. Kasturirangan report also evoked strong criticism from farm organizations and political parties. They argue that the use of remote sensing and aerial survey methods of zonal demarcation of land in Western Ghats is not based on ground reality and has caused many errors. Many farmers fear that they get evicted if the Kasturirangan report is being implemented.

Kasturirangan report has evoked strong protest from farm organizations and South Indian States, especially from Kerala. Government of Kerala appointed another committee under the Chairmanship of Oommen V Oommen. Oommen committee recommended to make changes in the clauses of environmentally fragile land (EFL) in the

Western Ghats. The committee pointed out that the satellite survey adopted by Kasturirangan had many errors and estates and plantations are included as EFL. It made recommendations for the exclusion of inhabited regions and plantations from the purview of ecologically sensitive areas. It also recommended that a field survey should be conducted to identify ESA's in lands demarcated by Kasturirangan and Gadgil reports.

The reports of Gadgil, Kasturirangan and Oommen V Oommen have evoked a lot of debate on the various issues facing the protection and conservation of Western Ghats. Most of the protests against the first two committees are due to the fear of eviction or loss of livelihood. The new NDA government has given an affidavit in the National Green Tribunal that only Kasturirangan report will be implemented.

Conclusion

The debate on protecting the Western Ghats is an eye-opener for protecting the biodiversity and flora and fauna of the Western Ghats. It is a fact that forest cover in the Western Ghats have deteriorated due to deforestation, human settlements, plantations, mining and due to a variety of

other factors. The Western Ghats, older than the Himalayas, is among the world's most biologically exciting regions holding at least a quarter of all Indian species. It is true that the region has faced a constant assault due to sand and bauxite mining, power plant projects, water pollution, unregulated farming and loss of habitat due to human settlements. Studies have shown that at least 25 percent of the forests have vanished which is now the home to more than 325 of the world's threatened species of fish, amphibians, reptiles, birds and plants. Kasturirangan report also has acknowledged that Western Ghats cannot be protected without the cooperation of the tribal and village people in the Western Ghats region. Thus a more pragmatic and scientific policy is required to protect the eco sensitive areas and regions of Western Ghats. For protecting the Western Ghats it is better to divide the mountain ranges into Northern and Southern areas. In the Western Ghats, mining is a potential future threat and should be addressed with preemptive measures.

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