

Forest Conservation for Livelihood Security

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ABSTRACT

Forests have a central role to play as the world confronts the challenges of climate change, food shortages, and improved livelihoods for a growing population. If predictions prove correct, the world will need to shelter, feed, clothe, and provide livelihoods for another two billion people by 2050. This presents a staggering challenge, particularly given new research from the World Bank showing that world temperatures could raise by 4 degrees celsius this century, impacting water availability, agriculture, and severe weather events. For centuries, forests have served as a kind of natural safety net for communities during times of famine or other events that impact agricultural and food production; they provide fruits, leaves, gum, nuts, timber, and wood for fuel. Forests feed people and the animals they might depend on for trade or meals when crops fail. At the same time, many of the world's remaining forests are under increasing threat which negatively affects the lives of people. Although the pace of deforestation has slowed in some regions, the world still loses about 14.5 million hectares of forests each year. Therefore there is a need to make such policies and strategies that can help in conserving forests. This paper is prepared with the objective to study the linkage of forests with the livelihood of people. An effort is made to review the pattern of forest degradation and its impact. Some of the strategies to protect forests and recent initiatives of government of India are also mentioned in the paper.

Keywords: Livelihood, Deforestation, Forest conservation

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INTRODUCTION

Forests are important renewable natural resources generating livelihood requirements for more than 25 per cent of the world's population. It is estimated that over 2.4 billion people worldwide depend on forest goods and services for the direct provision of food, wood fuel, building materials, medicines, employment and cash income [9-12]. About 200 million indigenous communities are almost fully dependent on forests [6]. Moreover, 350 million people who live adjacent to dense forests depend on them for subsistence and income [6, 31]. It is estimated that 20–25% of rural peoples' income is obtained from environmental resources in developing countries [29] and act as safety nets in periods of crisis or during seasonal food shortages [25].

Forestry is the second largest land use in India after agriculture covering 21.02 per cent of the total geographical area of the country. More than 50 million people in India depend directly on forests for their food and good nutrition [10]. Despite that many of the world's remaining forests are under increasing threat because of human activities and climate change. Although the pace of deforestation has slowed in some regions, the world still loses about 14.5 million hectares of forests each year [32].

Forests' capacity to maintain all benefits in the future is potentially threatened by anthropogenic impacts such as climate change, land use, and unsustainable management practices [30]. Tropical deforestation is a multi-faceted threat to the international climate change crisis and despite increasing awareness of the link between deforestation and climate change; tropical deforestation rates are accelerating dramatically thus requires creative and flexible regulatory solutions [1]. Deforestation and degradation of forest ecosystem is widely acknowledged and, despite the widespread degradation, there is dearth of quantitative information on the role of forest resources for livelihoods and dependence to guide sustainable use. This paper is prepared with the objective to analyze the role of forest resources in local livelihoods and the effect of degradation of forest on climate change and people livelihood. This paper also suggests some strategies to solve the problem of improving livelihoods linked to forest conservation.

IMPORTANCE OF FORESTS IN LIVELIHOOD GENERATION

India has the single largest concentration of rural poor than any other country with just 2.40 per cent of total geographical area, and 1.85 per cent of the total forest area of the world is burdened with 17.0 per cent of world's human and 18.10 per cent of world's livestock population [16]. Of the total population in India, about 72.20 per cent is concentrated in rural areas and living in and around forest areas [4]. About 30 crore people live below the poverty line in India, and among them, two-thirds depend either completely or partially on forest for their livelihoods [16]. According to the World Bank [31] estimation, around 275 million poor people accounting for 27 per cent of the total population depend on forest in one way or the other for their livelihood and the means of survival in rural India.

According to Islam *et al* [15] Forests provide a wide spectrum of livelihoods for people in the form of direct employment, self-employment and secondary employment. The direct employment is provided by the forest department and other departments (rural development, agriculture and co-operatives) in the form of managerial, technical, research, planning and executive jobs. The self-employment in forestry create local people's livelihoods through the sale of fuel wood and fodder, lopping and grass cutting, forest based handicrafts and cottage industries, etc. The application of local skills and village-level technology in wood based and small-scale forest-based enterprises provide secondary employment and livelihood opportunities for people [15].

The forest fringe communities not just collect the forest products for their own consumption but also for commercial sale, which fetch them some income. The income from sale of the forest products for households living in and around forest constitutes 40 to 60 per cent of their total income [18, 20, 25, 5]. A study [26] on the extent of Non-Timber Forest Produce (NTFP) use in north east India suggest that the tribal communities use 343 NTFPs for diverse purposes like medicinal (163 species), edible fruits (75 species) and vegetables (65 species). The dependence for firewood and house construction material is 100 and NTFPs contributed 19–32% of total household income for the communities under study [26]. Over 50 per cent of forest revenue and 70 per cent of export income are collected from non-timber forest produces [16]. Forests are not only a source of subsistence income for millions of poor households but also provide employment to poor in these hinterlands. This makes forests an important contributor to the rural economy in the forested landscapes in the country. The widespread poverty and lack of other income generating opportunities often make these people resort to over-exploitation of forest resources. The collection of firewood for sale in the market, though it is illegal, is also extensive in many parts of the forested regions in the country and constitutes the source of livelihood for 11 per cent of the population [14]. However, many other forest products have been sustainably harvested by local communities for many years, and are a constant source of household income.

A study entitled 'A study on forest based resources for livelihood in lower Shivalik hills' conducted by Kandwal in 2018, revealed that utilization of forest resources by majority of the respondents from Hoshiarpur and Kangra district was high and they had a favorable attitude towards forestry. But the livelihood status of the respondents was of medium category.

According to Food and Agriculture Organization, forests contribute to access to food through employment and cash income generated in the forest sector, which enable

households or individuals to purchase food, thereby supporting their livelihood. Income generation from the forest sector is the main driver of economic access to food and other commodities for forest-dependent households [9].

Pattern of forest change and reasons of forest deterioration

Rapid economic development since the 1850s has followed different paths in different parts of the world. Early societies comprising mostly hunting-gathering households depended on forests for nearly all of their livelihood needs. The agricultural transition translated into deforestation for cultivable land at a scale that was limited only by available technologies, by the labor available to cultivate land and grow crops and by the presence or absence of markets [17].

Industrial development resulted however in a shift in types of forest products demanded as also in the scale of the demand. Forests became the source land for industrial and commodity crops, and of raw materials for construction, furniture, and paper and pulp. The massive and global scale of the demand for these commodities has led to remarkably high rates of deforestation [7].

Deforestation is the conversion of forest to an alternative permanent non-forested land use such as agriculture, grazing or urban development [24]. Deforestation is primarily a concern for the developing countries of the tropics as it is shrinking areas of the tropical forests causing loss of biodiversity and enhancing the greenhouse effect [7, 18]. The main causes of deterioration of forests are, Critical livelihood- forest linkage of a huge forest dependent population [13, 7], expansion of farming land, construction of roads, Demand and supply gap of forest products- resulting in exploitation beyond its carrying capacity [3], fuelwood gathering, mining, urbanization/industrialization and infra-structure, overpopulation and poverty, corruption and political cause, Forest fires, over-grazing, illegal felling, and diversion of forest land (both permitted and illegal for non-forest uses due to competing land use demand for developmental and other uses [13, 21, 22, 7]. Another major cause of degradation of forest is slash and burn agriculture. Slash and burn agriculture is a method of cultivation without fertilization involving the removal of plants and trees by setting fires. It often led to the outbreak of forest fire which caused severe damage [12].

India showed an increasing trend in the forest and tree cover as against the global trend of decreasing forest cover during the last decade, but the five northeastern states saw their forest cover shrink [15]. Delhi has lost around 112,169 trees since 2005, a data released by Delhi government showed. This means it lost a tree every hour. According to Niti Ayog, India has a 21.23 per cent land under forest cover against recommended 33 per cent recommended in the national forest policy. A report submitted by Care Earth Trust to Greater Chennai Corporation to assess the green cover of the city said Chennai's green cover is reducing by 2 per cent every year. Teak no longer figures in the top five tree species in Telangana for felling of timber tree species. At least 60 per cent of districts in India are affected by forest fires every year, and the top 20 districts in terms of fire frequency are located mainly in the northeast, said a joint report by the Ministry of Environment and Forests and Climate Change (MoEFCC) and the World Bank. Karnataka reported 1,333 forest fires, a whopping 350 per cent more forest fires in 2017 than three years ago [8].

Development is being done on the cost of forests. As many as 26 cases across 11 states of forest land being acquired by the government for development projects surfaced throughout the year 2018, according to Land Conflict Watch, an independent data-journalism initiative. Maharashtra ranked fourth in India for maximum forest land diverted, with 40 proposals sanctioned over three years. The state lost 63 sq km of forest land in the past three years. The Maharashtra government gave its nod to divert 467.5 hectares of Yavatmal forest land to Reliance for its cement plant. Hundreds of forest trees have been cut down and a 1,000 more will face the axe in different forest areas of Ganderbal district in central Kashmir to lay 220 kV Srinagar-Leh transmission line [8].

All these have resulted in degradation of forest which leads to climate imbalance, water and soil resources loss and flooding, decreased biodiversity, habitat loss and conflicts, and economic losses.

STRATEGIES TO PROTECT FORESTS

Landscape approach

Over the centuries, the world has experienced vast forest loss with the spread of agriculture and population growth. To reverse deforestation trends requires a change in policies and laws, institutions, and incentives, in and beyond the forestry sector. This “landscape” approach embraces activities such as restoring degraded forest land, boosting agricultural productivity, realigning farm and forest incentives to protect forests from being converted into farmland, introducing trees on farms and ranches, and involving local communities more directly in the design and oversight of forest management.

The World Bank also emphasizes the benefits from integrating different farming approaches – including crop production, livestock, and tree farming – into one area, to diversify livelihoods, increase resilience to economic and climate shocks, and capitalize on natural synergies, for example in the water, carbon and nutrient cycles. [32].

Filling the gap of demand and supply of forest products

India’s huge population contributes to the large demand base of the forest products. With limited forest cover, the supply of forest products does not match the demand and hence there is a substantial gap. This gap often drives the over-exploitation of the forest. There has been different estimates of the demand and supply of major forest products. The estimates by Aggarwal *et al* [3], put the demand-supply gap for fuel wood, fodder and timber at 100, 853 and 14 million tonnes respectively.

Table 1: Demand and supply gap of various forest products

Forest products	Demand	Sustainable supply	Gap
Firewood	228	128	100
Fodder (green and dry)	1594	741	853
Timber	55	41	14

Source: Aggarwal *et al* [3]

Unsustainable harvesting and extraction of fuel wood can be substituted by promoting alternative livelihood and energy. The proposed REDD+ regime provides an opportunity for subnational actors, like States, to address the delicate issue of poverty in resource rich regions such as forested and tribal dominated States. 8 sources like biogas, solar energy (solar lanterns and solar street lighting), and improved cook stoves. The expansion of provisions for cleaner cooking fuels such as LPG in rural areas will help to reduce pressure on forests and enhance carbon stocks. This would save fuel wood and reduce pressure on the forests. The GoI has proposed to target 10 million households (in 0.1 million villages in forest conservation areas) for improved stoves (over 30% wood saving). Simultaneously, this would lead to saving of 2 million tons of fuel wood every year amounting to reduction of 3.6 Mt of CO₂ emissions per year [23].

COMMUNITY LEVEL FOREST MANAGEMENT

Greater involvement of the local communities in the management of forest and devolution of power through access and ownership rights ensures greater tenurial security and improved forest management and conservation. In recent years, devolution of forest resource management and access rights to local communities has become an important policy tool for many developing countries. Over the last two decades a profound change has been witnessed in the area of forest resource management, with countries at least partially devolving rights and responsibilities over their forests to the users. Community based management institutions often considered as a critical precondition for equitable, efficient and effective implementation of REDD+ [28].

India has also made significant effort in involving the local community for management of forest through Joint Forest Management (JFM) institutions since early 1990s. However, these JFM institutions need to be further strengthened by empowering the local communities with adequate power and responsibilities [19]. The recent decision to integrate JFM with the Gram Sabha of the Panchayati Raj Institutions aims at strengthening decentralized forest governance objective. This would encourage association of committees or groups such as JFMCs/CFM/VPs, etc. as well as livelihood promotion groups like SHGs/CIGs to plan for forest protection, conservation and enhancing livelihood based activities. Livelihood activities are best addressed at cluster level/sub landscape level/federation of SHGs/CIGs. The government also proposed Provision of infrastructure and support for

improved agricultural practices as well as other natural resource based activities like apiculture would ensure better income to these poor households. 11 to provide legal back up to JFMCs, build capacity of local institutions to effectively protect, regenerate and manage forests. Community driven innovative management practices can further check Forest degradation.

Other strategies that can be used are:

- Maintain order in forests and protected areas.
- Increase revenue returns from authorized activities.
- Prevent damage to forest resources resulting from unwanted resource violations.
- Meet sustainable yield targets.
- Involve the public through information and education programs to prevent violations and damage to forests and protected areas.
- Increase skill levels of forest technicians and forest managers in prevention, detection and monitoring programs.
- Reduce susceptibility or vulnerabilities that can create opportunities for unwanted activities to occur [11].

RECENT INITIATIVES OF GOVERNMENT RELATED TO FOREST PROTECTION

Forest cover in the country has increased by about 1 per cent, according to the biennial State of Forests Report 2017, but Niti Aayog says 21.23 per cent of the land is under forest cover. Also, protests have been done against government acquiring forest lands for development projects. Following are some of the steps taken by government for protection of forests:

- The Ministry of Environment, Forest and Climate Change, in March 2019, has finalized the first draft of the comprehensive amendments to the Indian Forest Act, 1927. Earlier, the focus was on laws related to transport of forest produce and the tax on it. Now, the amendment has increased the focus to “conservation, enrichment and sustainable management of forest resources and matters connected therewith to safeguard ecological stability to ensure provision of ecosystem services in perpetuity and to address the concerns related to climate change and international commitments” [2].
- The Forest (Conservation) Act of 1980 requires that afforestation is carried out in compensation for forest land diverted for non-forestry uses. The government enacted Compensatory Afforestation Fund Act 2016 to provide a proper institutional mechanism for compensatory afforestation matters. Recently Forest Advisory Committee (FAC) clarified that forest land with crown density below 40 per cent (open forest) will be treated as degraded forest land for compensatory afforestation (CA).
- Union Ministry for Environment, Forest and Climate Change (MoEFCC) released National REDD+ Strategy in 2018. REDD+ means “Reducing Emissions from Deforestation and forest Degradation”, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks in developing countries. REDD+ aims to achieve climate change mitigation by incentivizing forest conservation.
- A strategy for increasing green cover outside recorded forest areas is made in a report by an expert committee formed by India’s Ministry of Environment, Forest and Climate Change. Leasing of wasteland to the corporate sector for re-greening is among the major recommendations of the report [8].
- The Tamil Nadu State Forest Policy 2018 widened the outlines of conservation area networks and provided larger ranges of habitat for wildlife in the state. Regional Transport Office of Bhubaneswar has started a new campaign entitled 'one vehicle one plant' during which each buyer was to be gifted a plant during delivery of a new vehicle by showrooms [8].
- Other than that , Ministry of Environment, Forest and Climate Change is implementing a number of schemes to increase forest resources in the country, under which financial assistance is provided to State/UT Governments under Compensatory Afforestation Fund Management and Planning Authority (CAMPA). Some of major schemes of the Ministry are: National Afforestation Programme (NAP), Green India Mission (GIM),

Integrated Development of Wildlife Habitat (IDWH), Project Tiger, Project Elephant Intensification of Forest Management Scheme (IFMS) etc [2].

CONCLUSION

This paper has discussed the important role of forest and its linkage to livelihood of people. An effort has been made to review the reasons of forest degradation and its impacts. Various strategies and recent initiatives of government to protect forests have been discussed, which states that if countries are able to pursue inclusive green growth strategies that overcome some of the more severe trade-offs between growth and forest protection, the deforestation that has historically accompanied development in many countries could be slowed, making an important contribution to climate change mitigation. If the world is to confront the challenges of mitigating and adapting to climate change while meeting the demands of a rapidly-growing global population, it is vital that we find the balance between conserving and regenerating forest areas with economic growth for poverty reduction.

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