

Humans Prosperity through Forest Conservation

Abstract

India is one of the ten most forest-rich countries of the world in terms of forest resource along with the Russian Federation, Brazil, Canada, United States of America, China, Democratic Republic of the Congo, Australia, Indonesia and Sudan. Together, India and these countries account for 67 percent of total forest area of the world. India's forest cover grew at 0.22% annually over 1990-2000, and has grown at the rate of 0.46% per year over 2000-2010, after decades where forest degradation was a matter of serious concern. India's forest cover to be about 68 million hectares, or 22% of the country's area. The 2013 Forest Survey of India states its forest cover increased to 69.8 million hectares by 2012, per satellite measurements; this represents an increase of 5.871 square kilometers of forest cover in 2 years. However, the gains were primarily in northern, central and southern Indian states, while northeastern states witnessed a net loss in forest cover over 2010 to 2012.

Keywords: Global Warming, Deforestation, Erosion, Salinization, Reforestation, Salinization.

Introduction

Forests are the known moderator of climate and vegetation has made the soil living organism in nature. A luxuriantly growing vegetation is the hall mark of stable, productive soil with water adequately conserved underneath and fresh and pure air and water above, it maintaining a healthy environment for men and animals to live in peace. Environmentalists in the revised national forest policy (2015) have held that a minimum of 1/3rd of the land (2/3rd in the hills) must be covered under good forest to maintain ecological balance, to counter any natural disaster and live in harmony with nature. Keeping 1/3rd of the land under forest is a biological necessity to maintain biodiversity, regulate the hydrological cycle, flow of rivers and streams, lessen the fury of floods and droughts, check soil erosion and reduce global warming, besides providing the many necessities of life.

Against this background, U.P. has only 4.6 per cent of its geographical area under forest and its alluvial plain has hardly 3.0 per cent (Forest Survey of India, 2015). The salt affected districts of the state have only 1.8 per cent land covered with permanent vegetation. The more startling information is that 53 per cent forest area has open forest cover having crown density 10 to 40 per cent, out of which 38 per cent is reported as degraded, classified as wasteland devoid of any worthwhile vegetation (NRSA, 2015). Bring 33 per cent of the land in U.P. under forest can be said to be a distant dream but efforts are being made to launch a massive programme of afforestation.

Review of Literature

Forests play the most important part in maintaining ecological balance this same point is being emphasized by Nikhil Metha in his article entitled Importance Of Forests in India, in Discover India magazine on Dec 30, 2017 issue in his article he mentions how forests are important in reducing carbon dioxide from atmosphere, recharge ground water table, increase oxygen level and maintaining overall ecological balance in the atmosphere. Another article in The Hindu newspaper dated, 11 Sept 2017 by Peter Smetacek, title A Forest Policy on Today's Term discuss how we maintain forest cover in fast developing world. He also emphasizes the importance of Sustainable Forest and Human Development in co-existence with each other. Another such report by Planning Commission of India also highlighted how forests are helpful to us in today's polluted world the report also suggests some measures to increase forest cover in India.



Ashutosh Agnihotri

Teacher,
Deptt.of Geography,
Jaipuria College,
Kanpur

Objective of the Study

The present study is based on the importance of forests in our country and how forest helps in overall prosperity of a region besides this it also gives an insight in to the current government policy for land reclamation and afforestation scheme to help achieving the target of 33 % of total forest cover .

Methodology

The study is primarily based on secondary source of data and information. The secondary data has been collected from the following sources magazine, books, newspapers,

1. Indian forest policy survey 2015
2. Research publication from various institutions and publications
3. National forest commission report, government of India 2015
4. Various articles from yojana and kurukshetra.

Hypothesis

The uncontrolled weather condition, climate change global warming, soil degradation, lowering of water table , depleting bio-diversity drying of rivers, and numerous such problems has only one solution ie afforestation, and protecting existing forest cover. Through this article it will be proved that all existing problem has one solution that is forests so it is the source of wealth.

2007 Forest Survey Data

The 2007 forest census data thus obtained and published by the Government of India suggests the five states with largest area under forest cover as the following.

State	Area (in million hectares)
Madhya Pradesh	7.64
Arunachal Pradesh	6.8
Chhattisgarh	5.6
Odisha	4.83
Maharashtra	4.68

2013 Forest Survey Data

According to India's 2013 forest survey report, the forest cover in top five states has increased, with the exception of Arunachal Pradesh:

State	Area (in Million Hectares)
Madhya Pradesh	7.75
Arunachal Pradesh	6.73
Chhattisgarh	5.6
Odisha	5.06
Maharashtra	5.03

Bane of Deforestation**The Global Warming**

Deforestation accentuates extremes of climate. Recurrent floods and droughts desertification, global warming, etc., are all symptoms of changing climate patterns. Forests have tremendous carbon (C) sink capacity. Plants absorb CO₂ and release O₂ through photosynthesis. The reduced forest cover can not assimilate the increasing CO₂ layer in the atmosphere. It is reported that CO₂ level has gone up in the atmosphere by 26 per cent from the pre-industrial era. Besides industrialization is adding several other gases in the atmosphere which is expected to rise the earth temperature by about 1.5 to 5.5°C by the year 2030. The projected rise in

temperature might cause sea shore flooding through rise in sea level. The lengthening of summer and shortening of winter over the years may also have been included by the cutting of forests and progressive desiccation of land.

Rainfall Erosion

How the forests regulate the hydrologic cycle is well known. Reduction in peak runoff by the forest reduces flash floods. Increase in infiltration of organic matter rich and root proliferated soil increase sub surface flow and ground water recharge. These benefits are denied to land bereft of vegetation. Eastern U.P. is frequently visited by floods. Soil conservation programme was implemented in the flood prone catchments of the river Gomti for several years. However, afforestation work in the catchment is yet to be evaluated. Ground water level in the large number of blocks has been receding bringing them into dark category. ground water recharge as determined by the use of ratio- isotope of hydrogen, 3H has been reported as less than 10 per cent of the rainfall in several blocks which may not be equivalent to even single irrigation of 100 mm. High intensity rainfall often at 10-12 cm/hr characteristics of monsoonic climate cause flash floods because the denuded lands have lost absorbing power to be taken in such storms. A gradual decline in rainfall is another noticeable factor in several of the country. It is reported that Cherapunjee has been experiencing declining all over several decades from 9,144 mm/year in 1950 to near 5, 486 mm. Occasional drought conditions have also been reported. Needless to say cool climate of the forest regions arrest water bearing clouds to cause precipitation. Impact of forests in changing micro-climate has been well documented, but their absence on regional climate needs greater study.

Soil Erosion

Forest are very effective in reducing both wind and water erosion and also land in the hills. Hudson (1971) has reported that mean annual soil loss from bare ground 46.3/ha when ground with dense cover of *Digitaria* yielded only 0.4/ha soil annually. Only the imperceptible geological erosion which occurs in dense forest lands on the soil is exposed in a couple decades in barren lands due to accelerated erosion. The co-efficient in the Rational Formula $Q=CIA$ is also reduced from 0.50 to 0.72 on cultivated lands to 0.30 to 0.50 on wood lands depending on the topography from flat to only a silt loam soil texture. The steep runoff hydrograph of bare soil is also flattened wooded lands. The major dissipated role of forest is the perception of rain drops so that their kinetic energy is by the plants before being imparted the soil. The effectiveness, however, depends upon the height and continuity canopy, density ground cover and the root proliferation. Water drop falling from 7.0 m attain 90 per cent of their terminal velocity besides gathering mass on being retained on leaves.

Soil erosion increase rapidly as land use is changed from forest to grazed forest crop land. Most of the rivers in the Gangetic plains have their origin in the Himalayas. The deforestation and changing land

use in Nepal have accelerated erosion and increasing such sediment yield choke the river beds in the plains reducing their carrying capacity with features rivers overflowing their banks causing large scale floods in U.P. and Bihar. Deforestation on the catchments has lead to rapid siltation of reservoirs in the major river valley projects. Rate of siltation in many of reservoirs ways found much higher than visualized resulting in reduction in their life. The tremendous loss in irrigation and desertification of the commands can be visualized if they are silted up as the sites for their replacement are not to be seen. Urgency of soil conservation measures including afforestation of possible catchment areas is thus of almost necessity.

Gullies are the end product of erosion. The concentration of running water in the rills and gullies affords the most powerful erosive agent although raindrops may be potentially more erosive. Morgan (1977) observed that sediment transported in the rill flow was 50 times the overland flow and one thousand times the raindrop on an 110 slope in mid bed-Fordshire, when most of the energy of the rain drops contributed to detachment rather than transport. Early settlement began on the banks of rivers once thickly covered with forests. Denudation and over use of land have converted the banks of the Yamuna, the Chambal, the Betawa and many other into active gullies where runoff from the table land negotiates as steep slope to create waterfall like situation cutting back and extending into the table land. Reforestation is the most suitable solution of ravine reclamation.

Salinization is an example of changes brought about in the hydrological cycle as a result of deforestation, grazing and denudation of plant cover from the land. With interference in the constant circulation of water and air through the soil profile, the process of waterlogging and salinization set in. Medicolt (1880) emphatically asserted that the whole phenomenon of salt accumulation in India was due to inefficient circulation of atmosphere water and subversion of natural climatic conditions chiefly by the destruction of natural vegetation. There are records That in the Gangetic plains where the process of salinization had started much earlier was covered with some type of Butea forests that provided both fuel and forage to the local people. With increasing population pressure these vegetative cover disappeared and progressive desiccation lead to extension of reh. Subsequent denudation of upland forest cover land to siltation of drainage channels and accumulation of salts. Further development of canals roads, railway lines and uncontrolled use of impounded irrigation water without regard to drainage lead to large scale salinization as we see today.

Land Degradation

The above processes of degradation initiated by large scale removal of plant cover and overuse of land have resulted in 2.27 m ha. of wasteland in the state constituting 9.4 per cent of its geographical area (NRSA, 2015). Of these nearly half is due to water logging and soil Stalinization and other half due to erosion, a direct resulted of denudation of plant cover and excessive exploitation for fuel, fodder, timber and forest products.

Salinization



National Forest Commission and India's Afforestation Programme

In 2003, India set up a National Forest Commission to review and assess India's policy and law, its effect on India's forests, its impact of local forest communities, and to make recommendations to achieve sustainable forest and ecological security in India. The report made over 300 recommendations including the following:

1. India must pursue rural development and animal husbandry policies to address local communities need to find affordable cattle fodder and grazing. To avoid destruction of local forest cover, fodder must reach these communities on reliable roads and other infrastructure, in all seasons year round.
2. The Forest Rights Bill is likely to be harmful to forest conservation and ecological security. The Forest Rights Bill became a law since 2007.
3. The government should work closely with mining companies Revenue generated from lease of mines must be pooled into a dedicated fund to conserve and improve the quality of forests in the region where the mines are located.
4. Power to declare ecologically sensitive areas must be with each Indian state.
5. The mandate of State Forest Corporations and government owned monopolies must be changed.
6. Government should reform regulations and laws that ban felling of trees and transit of wood within India. Sustainable agro-forestry and farm forestry must be encouraged through financial and regulatory reforms, particularly on privately owned lands.

India's national forest policy expects to invest US\$26.7 billion by 2020, to pursue nationwide afforestation coupled with forest conservation, with the goal of increasing India's forest cover from 20% to 33%.

Afforestation Scenario in Watershed Development Projects

During the year 1953-2013 forest plantation in 3,27,228 ha was undertaken in 15 DPAP district of U.P. at a cost of nearly Rs. 5,000.00 per ha. It was planned that 10 per cent expenditure every year would be on afforestation but both area and expenditure declined from 10.11, 16.29 per cent to 7.8 and 1.66 per cent from 1995 to 2012.03. A very significant remark is that some evaluation experts gave good progress in area coverage and expenditure done but practically survival of afforestation was very less or nil (Sinha, 2003). It is clear that Panchayat Raj Institution and other executing agencies are not yet equipped to take up afforestation and after care of plantation. Extensive guidelines have recently been issued under Haryali Project on Afforestation management. Project Management should invariably include exit policy on post plantation management.

Boon of Afforestation with Aravari River of Alwar District a Unique Example

Afforestation is planting seeds or trees to make a forest on land which has not been a forest recently, some of the main benefits of afforestation includes maintaining bio diversity, restores ecological balance of all eco system, prevent flood and protect future of tribal people and their development, maintain atmospheric temperature and attract rainfall besides this it prevent soil erosion, maintain ground water level and provide aesthetic beauty .India with 630 square km of total forest cover almost 19.45 % of total geographical area is still 15% short of its required forest . Similarly India also possesses 18% of world population and 15% of of total livestock having just 2% of total area the pressure on natural forest is more than any other country in the world Indian Constitution put forest in its concurrent list so it is the responsibility of both state and central government to protect forest from being depleted . similarly constitution article 51A declare the duty of every citizen to protect and conserve natural environment including forest .The forest conservation act of 1980 also help to protect forest .

Findings and Solution

So in a nut shell we can say that there are many advantages,

1. We can increase greenery.
2. It will avoid desertification.
3. It will increase the precipitation and aids farming increase water resources
4. It reduces the air pollution.
5. It aids to minimize Global Warming.
6. It increases content in oxygen in environment.
7. It provides wood in future for furniture.
8. It provides food to tribal.
9. It provides so many herbs if planned.
10. It aids to improve biotic and abiotic components.
11. It reduces the soil erosion.

Conclusion

About 350 million people living in 2 lakh villages in the country (inside as well as on the fringe of forest blocks) are completely or substantially dependent on a nearby forest for their livelihood requirements (Tiwari, 2000). Joint/participatory management (JFM) was started in 1990. It has to be vigorously pursued to check forest degradation. Although it has been amply demonstrated since the close of 19th Century that simple closer to grazing/wood cutting with judicious planting could convert even the worst type of degraded lands into good forests in course of time (Agarwal, 1978). It has been a challenging task to protect them from the demands of grazers and wood cutters. Such system will have therefore had to be developed where destroyers become protectors. This is possible when part of the produce is shared with them with them with certain restrictions imposed in the interest of conservation, such as has been done in Sukhomajry project at Soil Conservation Centre, Chandigarh. Reduction of unproductive cattle has to be a part of the project (Gupta, 1993). U.P. Bhumi Sudhar Nigam has developed successful model of project management by actively employing users

group and beneficiaries operated institution in the reclamation programme which can be adopted with suitable modification in forest plantation in private and community on a sustained basis. Land, water and forest are resources that belong to the people and it is through their participation they can be best managed for peace and prosperity of the Nation.

References

1. Singh, Mahesh Prasad; Singh, J. K.; Mohanka, Reena (2007-01-01). Daya Publishing House. pp. 17-18.
2. "The Edicts of King Ashoka (also, see other translations)" Buddhist Publication Society. 1994. Archived from the original on 2014-03-28.
3. Negi, Sharad Singh (1993-001-01). Biodiversity and Its Conservation in India. Indus Publishing. P. 40.
4. "India's Forests" (PDF). Ministry of Environment and Forests, Government of India. 2009. Archived from the original (PDF) on May 4, 2013.
5. Indira Gandhi Conservation Monitoring Centre (IGCMC), New Delhi and the United Nations Environmental Programme (UNEP), World Conservation Monitoring Centre, Cambridge, UK. 2001. Biodiversity profile for India.
6. "Global Forest Resources Assessment 2010" (PDF). FAO. 2011.
7. "National Forest Commission Report, Chapters 1-8" (PDF).Ministry of Environment & Forests, Government of India. 2006. Archived from the original (PDF). On 2011-11-19.
8. "India's Forests: Forest Policy and Legislative Framework, Chapter 3-5" (PDF).Ministry of Environment