



Natural Wealth Conservation and its Use for Sustainable Development of Rural People

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Abstract

The indiscriminate, improper and excessive destruction of forest vegetation has posed a serious threat to the environment, biodiversity sustainability, environment health problem and living organisms health concerns. At the same time water conservation has become the need of the society. The ground water catchment is the most important source used as water conservation strategies. So, the protecting forests means protecting water catchments which ultimately help in water conservation and environment protection. So, the present work meant to save potable water and healthy climate for the societal benefits. The sustainable development is itself defined as a pattern of social economic development that optimizes the economic and societal benefits available in the present, without spoiling the likely potential for similar benefits in future. The water that nature recycles, the air that we all breath, the forest which maintain our climate and soil are all common property resource of our society. So this work deals with sustainable development through the forest and natural resources management is the need of our society and nation. This work involves the local people specially women in rural area. The management of forest through village-level will show that if people know that they can benefit from the forest, they will begin to protect them. This work also formulates the plan of formation of self help group (SHG) for women. It will play vital role in the empowerment of local women both economically and socially.

Introduction:

Forests provide shelter to people and habitat to biodiversity. These are a source of food, medicine and clean water; and play a vital role in maintaining a stable global climate and environment.

More than 80% of the biodiversity and nearly 50% of the organic carbon in terrestrial vegetation are stored in the forest of the world. About 1,70,000 plant species or two third of all plant species of the earth occur in tropical forest alone. Forest is precious resource having both consumptive and non-consumptive uses and provide important environmental services to mankind. Contribution of forest to the economy is traditionally recognized through products of economic value like timber as well as a range of non-priced products such as fuel wood, fodder and a range of Non-Timber Forest Products (NTFPs) or Minor Forest Produce (MFP) including medicinal plants that are exchanged in an informal manner.

Acceptance of ecological services of forest like hydrological benefits, soil conservation, flood control, carbon sequestration, fresh air generation, climate stabilization, bio-diversity conservation and amelioration of overall environment, eco-tourism etc. is recent outcome of the sustained awareness and mass communication efforts of the past few decades. Forest also play a very important role in rural and tribal economy as many of the NTFPs provide sustenance to a few hundred million poor people.

The indiscriminate, improper and excessive destruction of forest vegetation has posed a serious threat to the environment, biodiversity sustainability, environmental health problem and all living organisms health concerns. So step





has been taken to replace this threat with the conservation and awareness of forest inputs. The use of forest wild flora is one of the significant method involving in biodiversity conservation, forest conservation, sustainable development along with livelihood security of stakeholders. Just like any other part of the world, particularly developing but overpopulated country, forest of India are-also facing number of challenges. With 17% of world's population, and 18% livestock population over 2.4% of world's total geographical area, India's forests are facing severe biotic pressures as nearly 40% of domestic fuel wood needs of the people and 30% of fodder needs of the cattle population.

The main causes of deforestation are expansion of agriculture, urbanization, Industrialization, excessive commercial use of timber, fuel wood, non-timber forest products and cattle grazing.

Threat to the natural resources, wild wealth and environment stems mainly from: habitat fragmentation, degradation and loss, declining forest resources base, climate change and desertification, impact of development project, deficiency of knowledge in rural people. So, it is the duty of every educated citizen to protect and improve the national wealth which includes forest, lakes, rivers, wildlife and all natural resources, and to have compassion for living creatures.

Restoration commonly requires the participation of resource dependent communities so as to integrate with the larger landscape as well as to support sustainable livelihoods. It is estimated that approximate 178 million people live in forests or fringe area near forests. Their means of livelihood is heavily dependent on forestresources. However, with decline on forest cover and low agricultural productivity of lands near and in the forest, the people residing in these areas have been stuck with vicious circle of poverty.

Most rural families are directly dependent upon their immediate environment, and their own skills in using it, for the daily necessities of life. All household members are consumers of natural resources, and of raw materials collected from the surrounding environment. Women, however, are the key players at the subsistence level, and are the largest body of consumers (Rodda 1991). So, environmental degradation affects all family members in some way. However, environmental degradation affects poor men, women and children most, since it threatens their food supply, incomes and health, since they have the fewest resources to cope with these stresses (FAO 1993f).

The forest conservation or wild wealth conservation broadly define as the management of forest produce for the benefits of life including humankind of present generation while maintaining its potential to meet the needs and aspiration of the future generation. The sustainable development is defined as a pattern of socio-economic development which optimizes the economic and societal benefits available in the present, without spoiling the likely potential for similar benefits in future. Long term sustainable development requires an understanding of the interaction between human activities and natural processes.

Rural households are those closest to the environment and have the potential to play the primary role in conserving and protecting land, water, and





forests. Farmers, especially women, are the direct and everyday users of land and water, and are those most in need of new technologies, information, and services that can increase their productivity and conserve scarce resources.

The present work has been executed at Muniya Reserve Forest and nearby villages. It is situated 45 kms away from the prime city Nagpur (Maharashtra), and meets all the conditions which have been aimed for the study. The main focus in the whole programme will be on following three aspects :

- To maintain essential ecological processes and life support system.
- To preserve biological diversity and wild wealth.
- To ensure sustainability of resources for future generation.

Material and Methods:

The study area : Ecological status

The Study area Muniya Reserve Forest is situated 45 kms away from the prime city. So being near to the continuous disturbance the respective forest will gradually be facing the different types of threats to vegetation like fragmentation, encroachment, vegetation destruction, biodiversity loss. Basically it is a deciduous forest, but by different visits it can be interpreted that, the changing land use pattern may result into habitat destruction and may result into the extinction of many species.

The common plant flora includes trees like *BeutiaManosperma*, *TamarindusIndica*, *DiospyrusPeregrina*, shrubby xerophytes like *Lantena camera*, *Mimosa pudica*, *Echinopsechinatus*, many medicinal Plants *Anacyclus pyrethrum* (akkalkada), *Abutilon indium* (Kangori), *Evolvulusalsinoides* (Shankhpushpi), *Tylophoraindica* (Anantmul), *Kurcuma aromatic* (Ranhalad), *Cacciatora* (Tarota), *Ocimumgratssimum*(Rantulas), *Ocimumbasilicum*(Sabja), *Solanumxanthocarpum*(Kateringani), *Daturametel*(Datura), *Argimonemaxicana*, *Abelmoschusmoschetus*(Muskweed), *Aloe barbadensis*(Aloevera), *Phyllanthusniruri*(Bhueeaawala), *Achyranthusaspera* (Aghada), *Adhatodavasica*(Adulsa), *Justiciagendarussa* (Nilanirgudi). The forest also shows richness in avifauna and appearance of some wild animals like black bucks, blue bull, spotteddeers.

Social / Community status

The average land holding per household was less than half a hectare. This extremely small farm size means that even with maximum labour intensification, very less additional employment can be generated. But they in no way think about the forest produce, except grazing, which involves men, and collection of fuel wood by women. The stakeholders in no way think about the conservation and need of conservation.

This is very much unscientific and may damage the forest area directly or indirectly. Due to these and some other reasons most of the forest areas are banned by government for local entry and so the illiterate villagers fear with the





forest and forest persons. Another cause of fear of villagers is the forest fire, encroachment of wild animals in agricultural field and attacks of wild carnivorous on their belongings. Hence the local villagers are not friendly with the forest in their vicinity.

If seen through the perspective of villagers, drinking water scarcity is the crucial problem of this area. Due to irrigation, water shortage and poor milking livestock, farmers are unable to opt for subsidiary business with agriculture.

While if seen in the other way round, man- animal conflict has aroused as a result of increasing frequency of crop raiding by wild animals due to sharing of forest grazing land by local livestock.

Already being water scarce zone, summer season brings still more harsh conditions and all the water resources except Matkazarilake dry up gradually.

The objectives of the whole plan of this work have been derived from the needs and challenges which the forest area under study is facing. Conservative activities for environment were carried on all the sites of the forest with threats.

Ecological Conservation

a) Grassland and herbaceous vegetation

Due to commercialization of private land nearby study area forest, the livestock pressure on grassland in the forest now adays has drastically increased. It has caused serious threat to the grassland and herbaceous vegetation of the forest boundaries. So to save the producer ofecosystem is the main objective of the work. (Figure.1 and 2)

b) Soil erosion

The natural slopes in the forest are responsible for the soil erosion due to the surface run off as well as by wind movement in such a low density forest. A permanent vegetative cover is the best protection for soil. The bare ground allows four times more soil erosion as compared to permanent plant covered ground. So we have planted such species, which are capable of holding the soil strongly and ultimately holding the water. (Figure. 3 and 4)

The objective to fulfil these terms are-

- 1. Cover crop** – they are grown as a conservation measure during off season under tree
- 2. Rotational grazing** – for controlling erosion on grassland, rotational grazing is practiced .i.e. the stock is moved from one pasture to other, to give time for the grass to recover
- 3. Reforestation/ Deforestation** – vegetation play the major role in erosion control, it is the main objective of the work.

c)Water Conservation

Water scarcity and vegetation density of the forest are the major issues to be worked on in this forest and both are interdependent with each other. So the





water conservation practices and practices for increase in density of forest are one of the main objectives of the work.

They are-

1. To conserve rain water and improve the ground water level.
2. To construct and build up water sources.

d)Forest density

The percentage of forest cover plays a positive role on precipitation, provided that the considered area is large enough, and the annual runoff, of which the base flow is about three fourth. For the increase of 50 per cent of forest cover, the orders of the magnitude obtained increases from 150 mm per year for rainfall. The forest are supposed to lengthen the duration of runoff by about 10 days and decreased the daily maximum runoff (x4 to 6). The forest also increase the daily minimum runoff (x by about 3).

Unlike the bare ground, tree canopies become the active surface to receive rainfall besides solar radiation.

Dabral, etal., (1963), observed that interception by leaf litter was dependent upon the amount of rain and its intensity, as well as by the amount of litter present upon the forest floor. The objective in this regards are-

- To plant maximum saplings
- To green maximum area of Muniya Reserve Forest
- To increase biodiversity of Muniya Reserve Forest
- To develop the ecosystem of the Muniya Reserve Forest

The all conservation activities are for the development of Muniya Reserve Forest along with its natural floral wealth and its sustainable development and ultimately for the improvement of forest ecosystem. During this work we tried to make the stream in forest perennial which ultimately resulted in the increase in number of plant diversified vegetation.

Participatory Rural Appraisal

Another best objective to achieve the local participation is formation of Joint Forest Management Committee in the villages surrounding the forest area. Local village communities in the vicinity of the forest are to be formed into a committee for the protection and development of forest .

The whole management activity works to sort out the remedies for adaptation for animal and plant species and the whole ecosystem with the environment changes .Like-

- Improved instrumentation to avoid forest fire.
- To increase production of timber and fuel wood.
- To do the complete and proper use of available forest wealth.





- To increase biodiversity of forest.

Stakeholders Participation

As the forest provides various resources to a number of people, all involved parties must be made aware of one and other's needs and collectively decide upon sustainable resource utilization. This includes the mobilization and participation of all involved stakeholders. The main objectives of stakeholder participation are-

- To involve them in decision making .
- To add in their knowledge regarding sustainable development .
- To improve their future livelihoods.
- To ensure capacity building in them.

Women Participation

Illiteracy and unemployment of women and sustainable use and conservation of natural resources are complementary phenomenon responsible for overall sustainable development. The major obstacles faced by women in the process of sustainable development are-

- Lack of enough revenue
- Marginalization of women in decision making .
- Lack of biological and technical knowledge.
- Lack of capacity building and enough training for women .
- Lack of interest of women in conservation and biodiversity related aspects.

So the involvement of the local women by formation of Self Help Group is one of the objectives of this work. It should be for-

- Generating knowledge based understanding of their environment
- Devising mechanism to conserve and sustain their natural resources.
- Establishing community based organizations for knowledge sharing.

Generating economic source for the womens and make them self efficient by this process of empowerment. (Figure. 5-10)

Result and Discussion:

Water shade Management

Water shade management is the great achievement during the present work. It include soil and water management and developing vegetation cover.

a) In last few decades, National Policies regarding Forest Conservation and sustainable development, has inclined towards transforming forests in the whole country into Carbondioxideabsorbtioncenters. During the period 1995 to 2005 Carbon store which has been conserved in forests has increased from 6242





metric ton to 6622 metric ton .That means 3 crore, 76 lakh , 80 thousand ton of Carbon have been used i.e. 13 crore,81 lakh,50 thousand ton of Carbon dioxide from the air have been transformed into Biomass. Hence in the year 2000 by means of forest it was possible in reduction of the Green House Gases by 9-10% (ICFRI 2009).

b) Check dams, dig streams have contributed in a substantial improvement in the ground water level. So these water conservation practices applied during the work are expected to be flourished in the form of increase in green cover. The stream if becomes perennial due to the practices applied here, in future may change the ecological conditions of the forest.

The replantation was carried out to increase the flora population in the forest and it has increase to 9-10%. (Figure. 11 and 12)

Participatory Management

The attitude and awareness of local people (Men and women) plays important role during the whole work. The local people have been the practicing resources managers till the forests were declared as state property and come under government control, yet, the local people lack general awareness of the benefits of the forests and the importance of conservation and sustainable utilization of the forest resources. The traditional practices of Non Timber Forest produce collection and logging are unscientific and damage the forest areas. And now banned by the government. But in the light of the above, the generation of awareness regarding environment and importance of forest and proper utilization of forest produce become a necessary ingredient for the conservation of natural wealth for sustainable development.

In the past, forest areas were being solely protected by the people. But with the onset of legislations, people have been alienated from the forest resources and there is a general shift from the belief of “our forest, we will protect it” to “Government’s forest, they should protect it”. And so we educated people by this work take the responsibility on our shoulder to change this attitude of the illiterate local people who live in the vicinity of forest and create the awareness under the local people by the management practices of forest. These management practices during the whole work was carried out in two groups. The local villagers have plenty of natural wealth surrounding them but they lack in information and knowledge and on the other hand we educated, have plenty of information and knowledge, but don’t have natural resources around us.

Upliftment of stakeholders

Increasing problem of crop raiding by wild animals, limited or unpredictable agricultural yield, low milk yielding livestock, are the serious issues before local people today. During the whole work we made them aware about the role of forest in all this issues and the need of participation of local people in forest management. As an outcome of the work we can say that people are really willing to participate in management and conservation programme of forest, provided their daily livelihood issues are resolved up to resistible extent.





The achievement of stakeholders' participation may be count in terms of –

- 1) Improvement of their decision making.
- 2) Avoidance of conflicts and extra expenses due to badly informed decision.
- 3) Assurance of the understanding of sustainable forest management, sustainable harvesting practices and other forest related issues.
- 4) Empowerment of the stakeholders through their active involvement in the participation process and the opportunity to develop the knowledge, skills and resources required to assist in shaping their own future.
- 5) Uplift ment of rural livelihoods by increasing benefits from the forest or forest products.
- 6) Capacity building with regard to stake holders participation in management activities.

Women Empowerment

The women have the potential to be key agents of change in promoting and conserving natural resources, and in making a major contribution to environmental rehabilitation. First, they have the knowledge and skills of natural resource management that can be built upon. Second, women have a remarkable and demonstrated ability to work together. Third, in caring for children, women have a powerful influence over changing attitudes toward the environment. Finally, it is likely that restoring women's capacity to care for the environment will be associated with improvements in their independence and status.

After communication with the women, it has been observed that they mostly do agricultural activities and in addition to this, their daily activity is saturated to household only and that they are indispensable in production and consumption as well as in all aspects of sustainable development .The active participation of women in forest and natural wealth conservation schemes not only improves family welfare but also helps in ensuring scheme success, promotes greater equality, enlarge local knowledge system, increases women's decision making bodies, and contribute to their overall empowerment.

The formation of self help group for women and working as marketing persons for forest produce played vital role in the empowerment of local women both economically and socially and it may ultimately help in development of nation in future.

The whole programme focused on the maintenance of environmental stability, conservation of natural wealth by preserving the natural forest and meeting the basic need of people and also maintaining the relationship between the dependent people, thus encompassing ecological, economic and social aspects of forest management.





(1)



(2)

Figure. 1 and 2- Grazing in forest area



Figure. 3- Shallow stream due to soil erosion



Figure. 4- Forest facing draught



(5) (6)



Figure. 5 and 6- Replantation



Figure. 7- Seedlings growing in nursery pattern Villagers



Figure. 8- Conversation with Villagers



Figure. 9- Training for women in Jamlapani



Figure. 10- Meeting with SHG group



(11)



(12)

Figure. 11 and 12- Artificiallydug ponds



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