

SF Journal of Environmental and Earth Science

Forest for Sustainable Development: a Wakeup Call

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Abstract

Forest is largest natural resource harbor diverse forms of flora and fauna which play a key role in ecosystem processes. However, deforestation and other anthropogenic activities affect forest cover along with disturbing their ecosystem productivity and services. The practices of Sustainable Forest Management (SFM) is gaining popularity and forest health and productivity through better management practices for proper development and protection of vegetation stands. Management of forest is prerequisite for eco-environmental sustainability and stability that jointly works for achieving the overall sustainable development at global context. Indeed, SFM play an important role in enhancing biodiversity that intensify ecosystem services i.e., provides multiple products (timber and NTFPs) at sustainable basis without affecting environmental processes and maintains overall food-soil-climate security through better carbon sink potential which helps in achieving the local and global development along with ecological sustainability. Thus, an effective policy should be reforms for maintaining health and productivity of forest ecosystems through viable practices of SFM which would be a win-a-win strategy for better environment stability. In view of the above, this article emphasized the importance of forest and how the practices of SFM could intensify the ecosystem services along with maintaining overall ecological integrity and environmental sustainability that helps in achieving the target of forest covers creates a greater home for biodiversity and promising global agenda of sustainable development.

Keywords: Forest; SFM; Biodiversity; Ecology; Ecosystem; Sustainable development; Soil

Introduction

A rigorous discussion has been involved on the term “sustainability” by policy makers, researchers, scientists, stakeholders, and academicians on various national and international platforms. However, there is a dichotomy between sustainability and development but somehow the term sustainability becomes a center for achieving developmental goals without interrupting and destroying our precious environment. The term sustainable development represents a development in all dimensions of economics, social and environment [1].

Various questions are created and arise among the scientific community that “How can we achieve an environmental development through Sustainable Forest Management (SFM)? Can SFM promote ecological sustainability? How the forest resources achieve soil-food-climate security in sustainable way? How can we intensify forest ecosystem services without affecting environmental sustainability? Is there any dichotomy between forest and agriculture and who will be winner? The term forest are gaining worldwide recognitions on several technical forums due to multifarious benefits in context of social, cultural, economic, environment and ecology on which all entire human civilization are depends [2]. However, degradation of forest is major challenge today that not only affects overall biodiversity but also affects several ecosystem services and ecological stability. Forest provides various tangible and intangible benefits such as timber, fuelwood, firewood, nutritious food and fruits along with other NTFPs are comes under direct benefits whereas soil enrichment, biodiversity enhancement, watershed management, efficient bio-geochemical cycling, better rhizosphere biology and climate security are delivered through intangible services.

In lieu of the above, this article will give an emphasis on rational, needs and potential of SFM for achieving sustainability in various ecosystem services along with maintenance of food, soil and climate security that would be helpful in overall ecological stability. This paper has a synthetic analysis on agriculture and forest land use challenges and related opportunities.

Agriculture and Forestry: Friends and Foe

Although, we know the potential of both forest and agricultural land use systems but there

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Received Date: 21 Jun 2020

Accepted Date: 26 Jun 2020

Published Date: 30 Jun 2020

Citation: Raj A, Jhariya MK. Forest for Sustainable Development: a Wakeup Call. *SF J Environ Earth Sci.* 2020; 3(1): 1038.

ISSN 2643-8070

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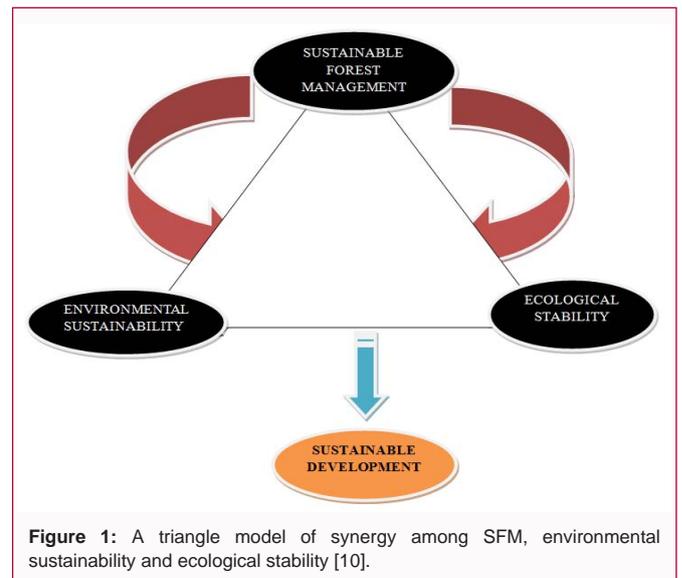
are some misconception exists among the researchers, scientist, policymakers and stakeholders. “Is there any dichotomy between forest and agriculture and who will be winner? This question needed a synthetic approach and not easy to come on any conclusions. There is a two school of thoughts, rising populations necessitates the global food requirements that promotes expansion of agricultural land on every land even on the forests by cutting and felling i.e., deforestation activity is promoted whereas second school says deforestation and other means of forest degradation will affects overall forest covers and related ecosystem services. Therefore, a big controversies have been arises on dichotomist relations in between forest and agricultural land use practices. But nowadays, the term agroforestry has been emerged to overcome the people’s perceptions towards agriculture and forestry. Agroforestry system is gaining wider popularity due to sustainable land management practices that involve both agriculture and forestry crops simultaneously on same piece of land and provide multiple products to maintain food-soil-climate security [3-5]. Thus, agroforestry is a good answer to all policy makers, planners, agricultural supporters, and forest fringe people’s, etc., form maintaining a healthy relations in between them along with provisions of multifarious ecosystem services that promotes a good health and wealth of peoples and environmental sustainability.

Sustainable Forest Management: Rational, Needs and Potential

Now a days, over exploitation of forest resources, illicit felling of timber, mining and industrial development, several biotic interference, introduction of exotics and other deforestation activities can promotes forest land degradation which affects overall vegetation structure and diversity that has changed the ecosystem structure and its services. These ill practices will ruin the overall forest regeneration and its development. Although various scientific ways of practices were already adopted for better health, productivity, development and protection of forests but these all are meaningless due to lack of sustainable practices. That’s why the term SFM has emerged and is gaining a great emphasis which is win-a-win strategy for management and development of forest in every aspect. Therefore, the rational behind adopting the SFM is “to create a greater habitat and place for all diverse flora and fauna which to pertain a scientific way of management practices for getting all access in sustainable ways”. The potential of SFM is not confine into forest areas but it is regional and global conception.

SFM: A Boon for Soil-Food-Climate Security

Today, burgeoning populations will directly and indirectly affect the world food and climate systems. Increasing population will enhance the pressure on peoples for foods that push the peoples for interfering the natural forest ecosystem for shelter, food and other agricultural activities. Anthropogenic disturbance will affects overall forest ecosystem. In this context, “How SFM becomes a boon for food-soil-climate security?” Indeed, SFM is a good strategy which provides quality and nutritious food and fruits in sustainable ways through maintaining soil and environmental quality. Healthy soil promotes the availability of essential nutrients that uptake by plant roots and helps in building quality and nutritious fruits which would be fruitful for healthy peoples and animals along with overall environmental security. Thus, there is great links between SFM and soil-food-climate security which drawn an attention towards adoption of sustainable based forest management practices that maintain biodiversity, intensify ecosystem services and promotes sustainable development



of whole nations. As we know, forests have greater potential of carbon sink and they store atmospheric carbon through the process of carbon sequestration and stores into them as a biomass that would be helpful in availability of biomass in forms of timber, fuelwood, fodder and NTFPs etc in parallel of maintaining climate security [6-7]. Thus, a sustainable based forest management practices should be pertaining for achieving these all services.

SFM for Environmental Sustainability and Ecological Stability

The forest can ameliorate all degraded and wasteland through greater adoptability, scope and potential that maintain conservation of overall natural resources by improving the microclimate [8-9]. However, if we talk about SFM which reflects a view on adoption of several eco-friendly approaches which involves the practices of afforestation, reforestation, agroforestry, and other improved silvicultural practices that not only helps in maintaining forest covers but also promotes environmental sustainability and ecological stability through various ecosystem services. Such approaches will maintain carbon balance in the atmosphere through enhancing sequestration and sink value of carbon into the systems. Thus, SFM is an integrated approach that helps in maintaining overall biodiversity, ecological stability and environmental security in sustainable ways. In this context, a triangle model has been developed which indicates a synergy among SFM, environmental sustainability and ecological stability that is depicted in Figure 1 [10]. Thus, SFM promotes forest management and development through better ecosystem health which pertain biodiversity conservation, people’s livelihood security, ecological restoration and integrity and overall environmental sustainability.

Policy for Achieving Sustainable Development through SFM

Sustainability is becoming a new core of discussion for all policy makers, governance, national and international agencies. The anthropogenic activities, deforestation, illicit felling of timber, biotic interference, mining, several development projects should be stopped while achieving sustainability goals through SFM practices that intensify various ecosystem services for betterment of peoples and environments which is one step before achieving sustainable

development in global context. Therefore, policy must be placed in accordance of promoting the practices of SFM for achieving sustainability goals at national and global levels.

Conclusion

Achieving sustainability is not an easy task but could be possible in every aspect of social, economic and environmental dimensions. In spite of that, both agriculture and forestry converge to forms agroforestry which is better sustainable land management practices covers overall prosperity and wellbeing of people's. Similarly, sustainable ways of management practices not only managed natural resources but also provides multifarious benefits in sustainable ways without destroying our precious environment and economy. In this context, SFM is becoming a good strategy for management, protection and development of forestry that provides uncountable ecosystem services such as biodiversity enhancement, soil enrichment, food & nutritional security, and environmental sustainability along with maintaining ecological stability. Therefore, a good governance and policy are needed to promoting SFM which is backbone of sustainable development, environmental sustainability and ecological stability at global context.

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