Forest Accounting and Ecological Sustainability

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FORESTACCOUNTINGANDECOLOGICALSUSTAINABILITY

Strictly as per the compliance and regulations of:

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Abstract- Forest accounting is creating ground for ecological rationality. World is in danger because of clashes in natural resources particularly ecological ecosystem. There is nexus between forest accounting and sustainable development. Forest is one of the important resources as it is one of the important components of the terrestrial environmental system and larger resource base. Forests provide different basic inputs to the global economic cum ecological system in a multi-dimensional way. It provides timber, fuel wood, pulpwood, fodder, fiber grass and non-wood forest produce & support industrial & commercial activities. They also maintain the ecological balance & life-support systems which is essential for food production, health as well as overall development of human kind. Forest accounting is having direct input to ecological ecosystem sustainability in various way such as (1) reducing loss of biodiversity. (2) Mitigate inflated economic production figures. (3) Enable value chain and supply chain accounting starting with net forest produce. (4) Enable Gross National Happiness -GNH calculation that is dependent on forest living and environmental standards. (5) Enable balanced economic growth keeping future economic concerns. (6) Enable balance in regional economic diversity. (7) Safeguard biodiversity (both plant and animal). (8) Assess tradeoff between agriculture and environment preservation exercises (9) assess nature of food safety networks based on area specific nutrition availability and bring economic measures for balanced nutrition in regions. (10) Cause rational international economic and diplomacy dialogues based on hard data. (11) Measure economic sustainability. It means need to change perspective of human being towards ecological system. More rationality must bring while dealing with ecology. Present research work would focuses ecological rationality Therefore forest accounting however following are the specific objectives of present research are as follows

1. To explore relationship between forest accounting and ecological sustainability.
2. To develop theoretical modeling of ecological ecosystem sustainability.
3. To discuss various issues of ecological rationality through forest accounting system.
4. To identified challenges of forest accounting.
5. To suggest remedies for ecological ecosystem sustainability.

The present study is explorative study on ecological rationality and sustainability through developing forest accounting system. Essential data has been collected and analyze to find out present nexus. Forest accounting would definitely contribute in making effective decision for forest ecology. There is need to look after forest accounting is one of the instrument for ecological rationality because it's providing various inputs for rational decision making. It cannot afford forest in danger otherwise society will be in danger. It must be recognized invisible forest ecosystem services and

determined its economic value so that ecological rationality would come in picture.

Keywords: rationality, ecology, ecosystem, forest accounting, india, sustainability, biodiversity, flora, fauna.

I. Introduction

Natural resources are the real wealth of a nation and every citizen of the country has equal right on it. Among all the resources, forest is one of the important resources as it is one of the important components of the terrestrial environmental system and larger resource base. The forests provide different basic inputs to the global economic cum ecological system in a multi-dimensional way. It provides timber, fuel wood, pulpwood, fodder, fiber grass and non-wood forest produce & support industrial & commercial activities. They also maintain the ecological balance & life-support systems which is essential for food production, health as well as overall development of human kind. Forests control the wealth of adjoining land use system. They also improve the wealth of urban areas. However, there is no proper accounting and valuation system available to tap this very important resource. It is leading big biodiversity loss that may cause to risk of disaster. Natural resources are a part of the wealth of the nation. Natural resources include Agricultural and Land, Water, Minerals and Petroleum, Fisheries and Forests etc. Forest sectors is the second largest land use after agricultural. Forest is one of the parts of natural resources. Natural Resource Accounting is closely related to Environment-Economic Accounting. Natural Resource Accounting (NRA) means a stock of natural resources and changes in them because of natural processes or human use. The rapid industrialization and progressive economic growth in recent years has led to phenomenal environment degradation and depletion of natural resources in India. Literature reveals that the Natural Resource Accounting has been made in many resources except forest areas. For that purpose, it is very essential to undertake accounting work for forest area. In India, forests were playing a significant role in rural industry as well as improve major environment resources. India is a one of the top ten most forest developed countries over the world along with the Russian Federation, Brazil, Canada, United States of America (USA), China, Democratic Republic of the Congo, Australia, Indonesia and Sudan. Along-with India, these top rich countries in forest areas account for 67 % of total forest area of the world'.(India State of

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Forest Report-2011). In India, forest cover improved at 0.22% annually over the year 1990-2000 as well as this forest-cover area grew at the rate of 0.46% per year from year 2000-2010'.(Global Forest Resource Assessment-2010) According to, 'Forest Survey of India-2013 the forest cover increased to 69.8 million hectares by 2012 per satellite measurement. This performance show increases of 5.871 sq. km. of forest covers in last two years'. (State of Forest Report-2013).

II. Review of Literature

It has been examined earlier studies on forest accounting in order to explore various aspects of it. It supports to understand inter linkages between various factors while making forest accounting.

(1) Haripriya, Sukhdev, Shinha and Sanyal (2007) They pointed out that to set out and apply a SEEA based methodology to show the true value of forest resources in India's national as well as state accounts. They study is focused on four components of value creation in forest i.e. timber production, carbon storage, fuel wood usage and the harvesting of non-timber forest products. The study finds that there is need to integrate national resources accounting into the national accounting framework. This is important to generate appropriate signals for sustainable forest management. They conclude that existing measures of national income in India is under estimated the contribution of forest income. The incomes of North-Eastern states in particular are highly underestimated by these traditional (GDP/GSDP) measures. The study has shows that if the limitation of the current data on production and prices are addressed, the income through forest will be much more than the today.

(2) Ykhanbai (2009) He has study on measuring and assessing forest degradation in Mongolia. The aim of the study is to collect information and review forest degradation accounting. For the study he used different methods such as degradation (depreciation) method, total rent approach and user cost method. He also studies physical and monetary accounting of forest resources degradation, but he not considers accounting for depletion of forest environmental services. The result of study shows that forest degradation has increased from year by year over the study period. The reduction of forest degradation is due to expansions of economic activity and increased global climate changes. He suggests that there should be improvement in forest resource management policies for the future sustainable development. He concludes that for improvement in situation of national resource degradation the institutionalization and adoption of green accounting produce in the country.

(3) Harris and Fraser (2002) They critically examine the natural resource accounting in theory and practices. The prime aim of the study is an extensive review of the theoretical and applied literature on natural resource accounting is provided. They also study the explaining of the economic theory that underpins natural resource accounting, counseling welfare and sustainability of the policy goals. In the study they present various different concept of national income. They found that there is fundamental difference in economic and national accounting methodology. Lastly they conclude that data shows the insufficient attention paid by economist to the revision to the SNA. Furthermore they suggest that there should be use of growth theory model to solve particular technical problem.

(4) Parikh and Ghosh (1995) Pointed out that the natural resource accounting for soil to estimate costs of soil degradation for India. They have analysis the soil resource as an empirical estimation of the cost of soil degradation by using the soil quality index for the measure states in India. According to the researcher soil productivity is a function of measurable soil properties/ assets. They conclude that the loss in soil productivity consequently affect to the soil degradation due to the soil salinization.

III. Problems to be Study

Forest is playing a significant role in balance of natural resources. The global concern about forest degradation and depletion is related to two main problems i.e. destruction of the carbon sinks affecting the global climate and extinction of species affecting the biodiversity. In this context, it is relevant to study forest accounting. These issues raise some problematic statements in the researchers mind, such as;

- No proper accounting for forest resources in the Systems of National Accounts (SNA).
- Management cannot understand the actual forest assets in areas.
- Problems of awareness and knowledge about the forest service in the people and society.
- Lower flow of goods and services in forest products.
- Lower income from goods and services produced by forest area.
- Lack of availability of fodder and reduction in productivity of livestock population.
- Lack of awareness about natural resource economics in terms of forest.
- Lack of proper valuation methodology of forest resources.
- Lack of investment in forest sector.
- Lack of awareness about business opportunity in forest sector.
- Issue of remunerative pricing.
- Value additions in forest produce-bamboo, jute, wool, etc.
- Agro forestry Interfaces.
- Trade Offs in agriculture and environment
- Biodiversity valuation

- Nutrition issues in forest product.
- Measure biodiversity loss and risk of disaster

There is no proper or scientific way of accounting for forest area that create many problems in management of forest resources and hence it's not showing its impact on biodiversity and economy.

IV. OBJECTIVES OF THE STUDY

Present research work would focuses ecological rationality Therefore forest accounting however following are the specific objectives of present research are as follows

1. To explore relationship between forest accounting and ecological sustainability.
2. To develop theoretical modeling of ecological ecosystem sustainability.
3. To discuss various issues of ecological rationality through forest accounting system.
4. To identified challenges of forest accounting.
5. To suggest remedies for ecological ecosystem sustainability.

V. HYPOTHESIS

The following are the specific hypothesis of the study.

1. India need to make forest accounting that will influence Indian bio-economy.
2. Forest accounting could be helpful for making ecological sustainability.

VI. RESEARCH METHODOLOGY

The present study is descriptive study and mainly depends on secondary sources of data. It will collect from different sources such as

Published Sources: The researcher will collect the data from sources such as Directorate of Economics and Statistics (DES), Forest Department Government of Maharashtra, Administrative Report of Forest Department, Forest Survey of India, National Sample Survey of organization (NSSO), Central Statistical organization (CSO) and also Books, research papers published in the Journals, Articles and different Websites etc.

Unpublished Sources: Ph.D Theses, M.Phil Dissertations and other unpublished sources.

VII. FOREST ACCOUNTING

It Forest accounting is multi-disciplinary area including Mathematics, Physics, Life Sciences, Chemistry, Statistics, Accounting and Finance, and economics etc. Therefore it is necessary to look after different parts of it. There are various parameters on which forest accounting system could be developed. Exploration of these all parameters would give clear picture of forest accounting in better way. It is a challenge to developed forest accounting since it involve complex ecosystem and its invisible services to society. Forest accounting is countering the nature's services especially forest and conversion of its in economic value. It is essential to develop mechanism that will include value of all economic contribution of forest and linked to economy. There are parameters are need to be consider while making forest accounting are as follows;

Actual / Economic Accounts: Following are the economic parameters of forest accounting.

a) Physical Accounting: Physical accounting refers to "the natural resource and environmental accounting of stocks and changes in stocks in physical (non-monetary) units". e.g. weight, area or number. Qualitative measures expressed in terms of quality classes, types of uses or eco-system characteristics, may supplement quantitative measures (Statistic New Zealand, 2002). Forest resources stock is changing every year.

b) Monetary Accounting: Monetary accounts refers to "the entries correspond to the physical accounts but contain an additional entry for revaluation, which records the change in asset value due to changes in prices between the beginning and end of the period, (Statistic New Zealand, 2002).

c) Forest Flow Accounts: Forest flow accounts, include supply & use tables for detailed forest products (wood & non wood, marketed & non-marketed) by sector, which are linked to the input - output (I/O) and also include measures of forest eco-system services, environmental degradation associated with forest use, (Statistic New Zealand, 2002).

(II) Financial Performance: While measuring financial performance following two parameters could be used.

1. Income: Forest department has getting revenue form forest in different ways such as rent of land under temporary cultivation, fees on duplicate permits, sale proceeds of licenses to catch hawks, sale proceeds of condemned tents, furniture and other stores, livestock, tools and plants etc, While evaluating financial performance of forest department aggregation of all income which is coming from forest need to be consider.

2. Expenditure: Forest department need to make various expanses in order to maintain forest such as plantation, protection of forest, salaries and wages of forest staff, harvesting, organization, improvement and extension of forests, livestock, stores, tools and plants etc. Aggregations of these all expanses would be minus from the revenue of the forest department.

(III) Ecological Classifications: For forest accounting ecological classification is must following are these some parameters which are used for it.

1. Legal Classification of Forests: It is important to understand forest in legal sense. Interpretation of what constitutes forest and to distinguish forest from other land uses is essential. (D.Venkateswarlu). In India there are two acts dealing the issues of forest i.e Indian Forest Act 1927, and Forest Conservation Act 1980. It is necessary to taken into consideration as forest those things come under the preview of forest otherwise it would not show correct picture. Identification of forest resources must be under the ambit of law. It is essential for doing forest accounting in fair manner.

2. Forest Types Wise: Forest type is a group of forest ecosystems of generally similar composition that can be readily differentiated from other such groups by their tree and under canopy species composition, productivity and/or crown closure. (D.Venkateswarlu). Forest valuation is depends on type of forest especially tree species, its utility, availability and its demand etc. These issues are matter for making forest accounting because it do impact on economic transactions.

3. Species Wise: Forest is just not tree there are various things involve in it. Hence in forest accounting has to take care of these all visible and invisible matters. Forests are home to 80% of the world's terrestrial biodiversity. These ecosystems are complex webs of organisms that include plants, animals, fungi and bacteria. Forests take many forms, depending on their latitude, local soil, rainfall and prevailing temperatures. Coniferous forests are dominated by cone-bearing trees, like pines and firs that can thrive in northern latitudes where these forests are often found. Many temperate forests house both coniferous and broad-leafed trees, such as oaks and elms, which can turn beautiful shades of orange, yellow and red in the fall. (WWL). Its challenge to make forest accounting because of economic invisibility of nature and its impact on society. Species wise valuation of forest would differ.

4. Fauna and Flora Wise: India has a rich diversity of flora and fauna. Flora refers to plant species and fauna refers to animal species. The term biota includes both plant as well as the domesticated and wild species of animals. There are over 45,000 plant species and 81,251 animal species. It represents about 7% of world's flora and 6.5% of world's fauna. Plants are the main source of food, fodder and other useful things such as fuel (fire wood), fibre, timber, medicine, gums, tannin etc. The Indian fauna includes variety of animal life such as mammals, birds, reptiles, fishes, insects etc i.e. about 800 species of mammals, 2000 species of birds, 420 species of reptiles, 2000 species of fish, 50,000 species of insects, 4000 species of molluscs (Source K.C.Agarwal, 1998). Forest is the base of biodiversity which include flora and fauna. It exits because of forest. It has its own tremendous socio-economic contribution to society. Therefore this parameter is very important

while making forest accounting which need to be taken in perspective.

5. Forest Product Wise: A forest product is any material derived from forestry for direct consumption or commercial use, such as lumber, paper, or forage for livestock wood. It used for many purpose such as wood fuel or the finished structural materials used for the construction of buildings or as a raw material, in the form of wood pulp that is used in the production of paper. All other non-wood products derived from forest resources, comprising a broad variety of other forest products, are collectively described as non-timber forest products. (Encyclopaedia). Thus forest is home of various products which has great economic value. Therefore potential of forest producing of such product and availability of such product would be one of the essential criteria for determining economic value of forest. Its output coming from forest in the form of product which would be useful to society. Forest accounting is considering all forest products and its economic value.

(IV) Forest Valuation Methods: There are various forest valuation methods such as follows.

1. Historical Cost Method: value of a forest is determined by summing up all the accrued investment, management, and operating costs. Basic approach consists in considering the costs that have effectively incurred since the acquisition of the forest e.g. historical cost method. (Samuel Wagniere, 2011). In this forest valuation technique historical cost is taken as base for forest resources valuation.

2. Market Price Method: Determining the value of a forest is by summing up all the accrued investment, management, and operating costs on the basis of the costs that would accrue in case the forest had to be established under current market conditions again e.g. current market price or replacement cost. Value of a forest from current observable market prices (Samuel Wagniere, 2011). In this forest valuation technique current market price of forest resources is taken into consideration for valuation.

3. Discounted Cash Flow Method: A discounted cash flow (DCF) is a valuation method used to estimate the attractiveness of an investment opportunity. DCF analysis uses future free cash flow projections and discounts them to arrive at present value estimate, which is used to evaluate the potential for investment. If the value arrived at through DCF analysis is higher than the current cost of the investment, the opportunity may be a good one (INVESTPEDIA). In DCF calculation of forest starts with an inventory of the current forest stand, followed by the determination of the marketable forest products that will provide future cash flows. After that it follows a projection of the future yields of the forest with regards to the determined products and the forecast of

the net cash flows based on cost estimations and revenue estimations. The final step is the discounting of the net cash flows to the present, using an appropriate discount rate (Samuel Wagniere, 2011). DCF is providing more reliable result and at present it most accepted method of forest valuation used by experts. Of course there challenges in this method like finding appropriate discount rate however it is used widely.

4. Real Option Pricing Methods: It is also often termed real options analysis, (ROV or ROA) applies option valuation techniques to capital budgeting decisions. Real option itself, is the right but not the obligation to undertake certain business initiatives, such as deferring, abandoning, expanding, staging, or contracting a capital investment project (Samuel Wagniere, 2011). It is found that ROP models are applied to the domain of forestry in which the option constellation is provided by a forest property to the forest owner.

5. Sensitivity Analysis: A sensitivity analysis is a technique used to determine how different values of an independent variable impact a particular dependent variable under a given set of assumptions. This techniques is also useful in forest valuation because parameters of forest valuation is most sensitive such as prices of the forest products and the discount rate, length of the rotation , growth and yield assumptions, or the presumed management regime of the forest, (Samuel Wagniere, 2011). In this valuation techniques sensitive factors of forest resources are taken into consideration for valuation.

(v) Forest Economics: Following are the parameters could be useful to understand forest economic in great detailed.

1. Forest Resources: It means the various types of vegetation normally growing on forestland, the associated harvested products and the associated residue, including but not limited to brush, grass, logs, saplings, seedlings, trees and slashing. (Encyclopaedia). Forest is rich of various valuable resources. Economics of forest resources is very strong. Forest accounting must include all the forest resources and its cost benefit analysis. It will help to understand contribution of forest resources in mainstream of economy.

2. Goods and Services: Forest produce significant products such as paper, plywood, sawnwood, timber, poles, pulp and matchwood, fuelwood, sal seeds, tendu leaves, gums and resins, cane and rattan,bamboo, grass and fodder, drugs, spices and condiments, herbs, cosmetics, and tannins. (Encyclopaedia). Along with that forest produce various invisible ecosystem services such as climate regulation, water regulation, pollution control, biological control, pollination, hazardous control, biodiversity and soil erosion etc. These all goods and services has tremendous economic value

and significant contribution in economy. In forest accounting goods and services is major component to be considered.

3. Business: Forest is significant rural industry. It has tremendous potential of business such paper mills, fodder industry, food processing, medicine, saw mills, furniture, crafts etc. Thus business potential of forest is significant factor in forest accounting,

4. Employment: Forest generate huge employment to poor people. Millions and millions of people and animals are directly depends on forest. They are getting their livelihood from forest. Therefore employment generation from forest is also one of the important aspects of forest accounting.

Above mentioned forest accounting parameter would definitely helpful for developing good forest accounting system. However only these parameters are not sufficient need to make further investigation. But these parameters would give good ground for making forest accounting.

VIII. Challenges of Forest Accounting

It is very significant to make forest accounting. However it is difficult task. Following are the challenges emerges in forest accounting.

(1) Identification of Biological Assets: Identification of biological assets in forest accounting is real challenge. Biological assets produce invisible economic ecosystem services. It support life system. They are hidden and versatile like microorganism and hence it very difficult identified.

(2) Valuation of Biological Assets: After identification of biological assets needs to make valuation of it. However, there is no systematic and perfect method exists for making valuation of such biological assets.

(3) Measurement of bio-diversity Loss: Important component of forest accounting is identification and measurement of biodiversity loss. Again there is no fixed standard available which measure biodiversity loss in monetary terms.

(4) Compensatory Value: Again identifying the compensatory value of ecosystem services is difficult. There is no perfect methodology available for compensatory value for nature services.

(5) Availability of Data: There are lot of complexity and greyness in data related to forest resources and forest ecosystem. Unavailability of data leads to limitation in making accurate analysis and interpretation.

(6) Internalization of Externalities: Forest resources and forest ecosystem is versatile phenomena on which external and internal aspects made impact. In forest accounting internalization of externalities is a problem. Because there is no standard methodology available for assessing the impact of externalities in monetary terms.

Generally these above mention challenges are dealing by researchers in natural resources accounting. It is difficult to resolve because it involves various invisible services which is difficult to quantified and assigned value. However these all services has economic value.

IX. FOREST ACCOUNTING AND BIODIVERSITY

Forest biological diversity is a wide term that refers to all life forms found within forested areas and the ecological roles they perform. As such, forest biological diversity encompasses not just trees, but the multitude of plants, animals and micro-organisms that inhabit forest areas and their associated genetic diversity. Forest biological diversity can be considered at different levels, including the ecosystem, landscapes, species, populations and genetics. Complex interactions can occur within and amongst these levels. In biologically diverse forests, this complexity allows organisms to adapt to continually changing environmental conditions and to maintain ecosystem functions (CBD).The significant contribution of forest accounting is of helping to maintain biodiversity. There is strong nexus between forest accounting and biodiversity. Forest accounting explores different services provided by forest to biodiversity and measure its impact on it.
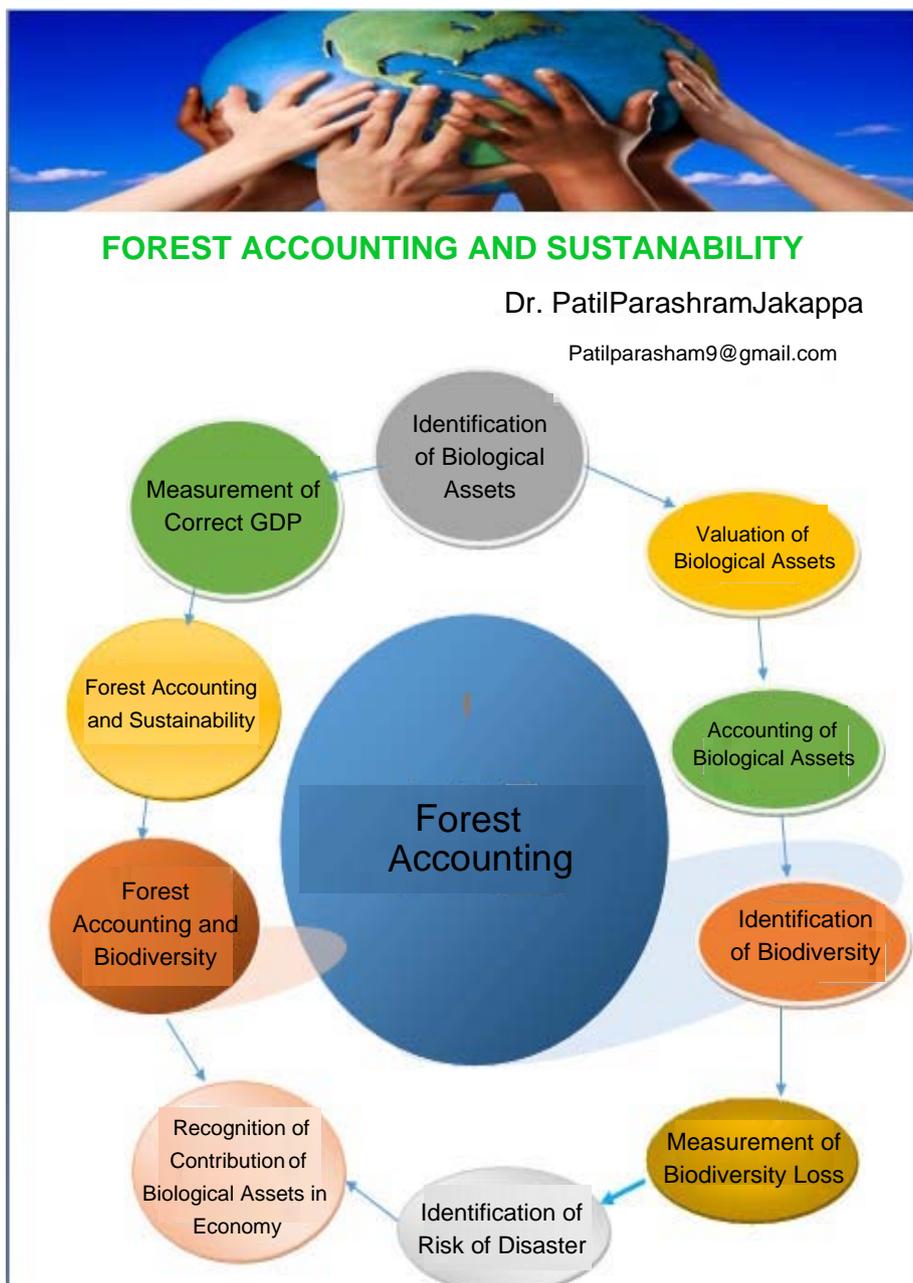

Figure 1: Theoretical Model

(1) *Climate:* Forest is giving significant input for climate regulation and it is essential for biodiversity. Forests are the only major ecosystems where the amount of carbon stored in biomass of the plants exceeds that in the soil; deforestation therefore also affects climate regulation (Elmqvist et.al 2011).These services are provided by forest free of cost. It needs to be taken into consideration in forest accounting. Climate change cost to economy, to reduce down that effect forest accounting would help in great extent. Identification of these forest services to climate regulation and quantification of it in monetary value would be concrete steps in understanding and preserving biodiversity in long run.

(2) *Water:* Forest services are playing major role in maintaining water cycle without this water regulation would not be possible. Forest and wetlands with intact groundcover and root systems are considered very effective at regulating water flow and improving water quality (Elmqvist T et.al 2011). Water is essential component of biodiversity preservation. Again forest services for water regulation are invisible not counted in monetary value. It can be quantified and find economic value of it so that forest services could be recognized. It shows nexus between forest, water regulation and biodiversity.

(3) *Biological Control:* The loss of biodiversity can be attributed to deforestation that effect on biological process. Forest protects biodiversity in terms being home of species of flora and fauna. It has their own biological process depends directly and indirectly on forest.

(4) *Erosion prevention and hazard control:* Vegetation cover is the key factor for preventing soil erosion (Elmqvist T et.al 2011). Forests protect against landslides by modifying the soil moisture regime (Sidle *et al.* 2006). Thus forest services are directly contribute in erosion prevention and hazard control which essential for biodiversity and sustainability. Accounting of forest ecosystem services recognize value providing to society by forest.

(5) *Pollution Control:* Forest play multiple roles when it comes to local air pollution. Trees in general help to reduce air pollution, including absorbing the greenhouse gas carbon dioxide, some species contribute to local smog by emitting volatile organic carbons (VOCs). Planting locations of individual trees and species selection make a difference in the overall pollution balance.(Melanie Lenart, 2015). Forest is essential component for reduce down pollution in urban as well as in rural area. These forest services which absorb carbon dioxide are directly contribution in biodiversity and sustainability.

(6) *Pollination:* One of significant forest services is Pollinators. It is responsible for assisting over 80% of the world's flowering plants. It provide food to humans and animals without which it is not possible to meet food demand. It is an essential ecological survival function. Without pollinators, the human race and all of earth's terrestrial ecosystems would not survive. (USDA). For quantification of pollination services in monetary value is necessary to in forest accounting. Pollination is promoting biodiversity.

(7) *Biodiversity Loss:* Forest accounting using different parameters measure the loss of biodiversity. Identification and quantification of actual biodiversity loss would help to make concrete policy making to reduce down biodiversity loss. Therefore for the biodiversity preservation forest accounting could be used as one of the instrument. Unless identification and measurement of biodiversity loos one cannot make prevention action on it. Forest accounting would tell the loss of biodiversity.

(8) *Trade off in Agriculture and Environment:* Impact of undesirable tradeoff could be assessed through forest accounting. 35% of the Earth's land surface is used for agriculture growing crops or rearing livestock (ML 2005). Due to repaid industrialization and agriculture trade off in agriculture and environment is become complex issue. It is badly making impact on biodiversity. Forest accounting would help to assess trade off situation.

(9) *Risk of Disaster:* Forest has a significant role in reducing the risk of natural disasters, including floods, droughts, landslides and other extreme events. At global level, forests mitigate climate change through carbon sequestration, contribute to the balance of oxygen, carbon dioxide and humidity in the air and protect watersheds, which supply 75% of freshwater worldwide (SDNF). Natural disaster cause huge biodiversity loss and damage to ecosystem that make negative implication on economy. Forest accounting would help to identified risk of disaster.

(10) *Sustainable Development:* The practices of sustainable development are biodiversity friendly. Forest ecosystem services are supporting sustainable development by regenerating ecosystem. Forest himself shows various ways of practicing sustainable development. Forest accounting would also help in sustainable development.

Thus forest accounting is given significant input in various ways such as protecting biodiversity, sustainability, protection of ecosystem, livelihood, economic development, industry and trade, employment generation, reduction of biodiversity loss, risk of disaster, true measurement of economic development, and generating accurate data for policy makers etc. In present context bio economics is getting significant importance in national policy making. It intents that forest accounting practices are inevitable in economy because green economy would be the future. Therefore it is in great interest of society that forest

accounting would come as one of the major field of study.

X. Conclusion

In India forest sector is the second largest land use after agricultural sector. The forest helps in maintain of ecological balance in environment. Forest accounting is helpful and important for maintenance of natural resources in forest in a proper way. It is also helpful to make monetary accounting of forest resources. It is important to the management of forest area and understanding the availability of natural assets and income earned from this asset. It will show importance of natural economics and different method of valuation of natural resources. This study is also helpful to societies and industries dependent on forest product. They can understand and be aware about the forest resource they used for their own purpose. The forest is beneficial to agricultural system and plays an important role as foster mother in promoting agro industrial economy. Forests made significant contribution to Indian economy and to the state domestic production. However following are the specific advantages of forest accounting (1) To reduce loss of biodiversity.(2) To mitigate inflated economic production figures.(3) To enable value chain and supply chain accounting starting with net forest produce.(4) To enable Gross National Happiness -GNH calculation that is dependent on forest living and environmental standards.(5) To enable balanced economic growth keeping future economic concerns.(6) To enable balance in regional economic diversity.(7) To safeguard biodiversity (both plant and animal).(8) To assess tradeoff between agriculture and environment preservation exercises(9) To assess nature of food safety networks based on area specific nutrition availability and bring economic measures for balanced nutrition in regions.(10) To cause rational international economic and diplomacy dialogues based on hard data.(11) To measure economic sustainability. Hence it is need to make in depth theoretical analysis of forest accounting. It is an instrument to understand eep biodiversity loss of ecosystem services and identified the risk associated with it sot that potential disaster could be prevented. Thus it is significant to look at sustainability by making proper forest accounting, it will definitely make difference.

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