



Analysis of possible scenarios for conserving forest cover in Sri Lanka

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Abstract

Forest cover of Sri Lanka shows a decreasing trend, since early 19th century. Population growth, Agricultural and irrigation development activities, settlements, urbanization, industrialization and infrastructure developments are largely responsible for increasing trend of deforestation. 82% of dense forest cover in Sri Lanka in 1882 had been gradually decreased to 27% in 2015. Due to the multifarious forestation programmes; such as 'Punarudaya' environmental protection programme, 'Wana Ropa' reforestation programme and several other tree planting projects implemented by the Government and non-Government organizations after 2015; the forest cover has begun to show a slight increase thereafter. Sri Lankan Government has an intention to increase national forest cover to 30-32% by 2020. Relevant stakeholders' contributions to implement special projects to increase forest density and to manage and conserve the existing forest at the same level is more vital. This analytical essay was written with the objective of revamping history/trend of the forest cover and to suggest probable action to develop the forest sector in the future to meet 2020 target. The qualitative approaches have been followed, utilizing only secondary data for this paper. We had multiple plan, actions and project to enhance the forest cover in Sri Lanka, since 1940 by time to time changing Government; however we as a nation still struggle to bring-up the percentage of the forest cover upto certain level. Hence, it is suggested to have single irrevocable policy/plan to develop forest cover in Sri Lanka, which cannot be stopped or revoke by any Government or policy, rather adding value or benefit to maintain it in a sustainable manner. It further requires a periodic review to evaluate pros and cons of it and to be incorporate adjustments, wherever necessary.

Keywords: forest cover, reforestation, deforestation, forest management and social forestry

Introduction

Forests cover and its products are essential for the existence of this earth and all livings on it, due to its ecological activities and functions. It provides wood, non-wood products and other environmental services, which are really needed by the people. The relationship between forest and people has a long history, since King Vijaya (543 B.C.) landed to this Island and

would have played a major role in shaping the peoples' lives. This resulted gradual decrease of this heritage, along with many of its material benefits to extend development activities and to fulfill day-to-day needs of people, especially from colonial periods. Such destructions, due to the multifarious purposes as stated below, led to negative



impacts to the living environment. Ultimate consequences of it are common to all, those who spoil the nature and other innocent livings on this earth without any reservation. The statistical information shows that the Sri Lanka had a 82% of rich tropical forests cover, natured by abundant radiation, high temperatures and rainfall in 1882 (NRSL, 2000). This have been deforested both legally and illegally and was reduced to 27% in 2015 (www.forestdept.gov.lk, accessed on 02.01.2016). The large demand of land for settlement and resettlement schemes, economic advancement, agricultural expansion, Timber productions and weaker enforcement of existing law and land use policies are major factors for large scale of forest degradation (Gunatilake, 1998). 30 years of civil war ended in 2009 also contributed to the deforestation by way of increasing demand for resettlements of displaced people. Accumulation of all negative activities to the nature throughout the period at an alarming rate shall lead to major consequences, such as loss of habitat, water scarcity, nutrition depletion and soil erosion *etc.* The 'Punaruwanaya' environmental protection programme, implemented by the Presidential Secretariat and 'Wana Ropa' reforestation program by the Mahaweli Development Authority, Ministry of Environment and the Department of Forest together with all government and non-governmental organizations since 2015, have been launched to maintain the forest cover at the rate of 30-32% by 2020.

Objective

This paper was written with the objectives of understanding trend of the forest cover and to analyze the probable scenarios for forest sector development and conservation in Sri Lanka to reach 2020 target.

Methodology

This is an analytical paper, written following qualitative approach and utilized only secondary data from books, articles, report, presentations and webpage as depicted in the reference list. All collected data were organized, according to the objectives, especially statistical information. A few statistical data, such as forest cover percentage of land area were derived, based on the previous year data, using following formula.

$$\%FCCY = \frac{\%FCPY}{FCPY}$$

Where $\%FCCY$ represents percentage of forest cover is in the current year, $\%FCPY$ is percentage of forest cover of previous year, $FCPY$ is Forest cover of previous year (ha).

Historical Background

During the colonial era, British took over the coastal areas of the Island in 1796 and subsequently captured the upcountry kingdom through a peaceful conspiracy in the year 1815. Since then, the destruction and denudation of forest cover for the purpose of development and expanding of Timber Industry had been carried out, which resulted in reduction of forest cover, throughout the Island from 82% in 1882 to 31% in 1992 (NRSL, 2000). Its percentage in 2015 was 27%. The reasons behind this declining trend would be summarized as follows.

- i. During the early stage of the 19th century (in 1835), both Coffee and Tea plantation were introduced in Ceylon, which had required more land area for cultivation in the Central Province (particularly in the N-Eliya District). This had contributed in great measures towards the destruction



- of forest sector, during the period underviii. reference.
- ii. After the independence in 1948 and with the gradual expansion of population, more land were required for the purpose of settling down them and to develop infrastructure facilities to fulfill their daily needs.
 - iii. In 1970, the Government of Sri Lanka promote local agricultural products and accommodate more land area for cultivation with the intention of self-sufficiency.
 - iv. In addition, the accelerated Mahaweli project exploited forest cover further, during the period of 1977-1987. Therefore, the Forest Department (FD) has accelerated its conservation programs, promulgated a new Forest Policy (FP), enlisted people's participation, commenced social tree planting, agroforestry, community forestry, plantation forestry and prepared modern forest management plans *etc.*
 - v. Most of the deforestation occurred in the dry zone area, due to the opening up of forest for irrigation activities and increasing trend of settlements and also illicit forest clearing to fulfill multiple needs. During the period from 1983 and 1992, 37% of the deforestation was attributed, due to the lunugamwehara, Kirindi Oya, Inginimitiya, Sevenagala, Gamudawa and Pelawatte Sugar Company projects.
 - vi. From 1994 to 2005, the multiple mega projects in terms of developments has contributed for deforestation.
 - vii. Since 2005 onwards, "Uthuru Wasanthaya", Neganahira Udanaya, Maga Neguma", Gamperaliya, *etc.* further reduced the natural forest cover of the island. In 2015, forest area for Sri Lanka was 20,634 sq. km, which was to 22,196 sq. km in 1997.

Hence, the Department of Forest Conservation has extended various strategy to conserve the existing forest and allocated further land area of 90,000 hectares for re-forestation with the aim of increasing forest cover of the country from 27% (2015) to 30-32% by 2020.

Importance of forest cover

All livings in this earth depend on the forests for its survival, which cannot be underestimated; since it provides air to breathe, food to consume, livelihood to human, habitats for animals offer watershed protection, prevent soil erosion and mitigate climate change,*etc.* Similarly denudation and depletion of such forest will have an irrevocable negative impacts to this environment and ultimate consequences of it should be faced by all livings in this earth, including 7.8 billion people, since their close intersection with the nature.

Approximately 13 million people are employed in the forest sector, across the world and 300 million people live in forest, including 60 million indigenous people. Totally over 2 billion people rely on forest (www.forestdept.gov.lk, accessed on 02.01.2016). Taking into consideration all facts above and also its ecological, environmental and socio-cultural benefits with infinite values; the people have a great responsibility to conserve at least the existing forest cover in our motherland.

Deforestation and cause

The depredation and degradation of forest cover in any part of the world has a gradual process and ended up with 31% forestland, compared to the earth surface is covered by forests. In fact, the forest destruction has a negative relationship with alteration and development of existing resources. The



reason behind this is utilizing forest resources and land to fulfill people needs, by way of settlement, agriculture, urbanization, infrastructure development projects and ancillary nature of other development activities. Since 1990 to 2015 the world has lost some approx. 130 million hectares of forest cover, which is the size of the area of South Africa. When we cut a tree, it is not just the tree that go off, that is the entire ecosystem gets damaged. Between 2000 and 2012, 2.3 million square kilometers of forests, around the world were cut down (www.panda.org.-02.01.2016). According to the Global Forest Resources Assessment, (2015); the global average rate of net forest loss during 2010–2015 was 7 million ha/year.

In 1882, the forest cover in Sri Lanka was 82% and the human population was 3.5 million and it is 27% with 21.4 million population in 2015, which too shows a negative correlation. The pattern of this destruction was geographically taken place from South west to North east region, due to the reasons such as internal migration to southwest and subsequent settlements in the regions, urbanizations, agricultural developments including the plantation sector, irrigation projects-specially accelerated Mahaweli projects, housing projects (Gamudawa) island civil war situation since 1983-2009, illegal forest clearance and conversion of forest land into non-forest use *etc.* This decreasing trend has become a large threat to the survival of biodiversity of our nation. Sri Lanka has 751 known species of amphibians, birds, mammals and reptiles of which 21.7% are endemic, and over 3,314 species of vascular plants, of which 26.9% are endemic (www.forestdept.gov.lk, accessed on 02.01.2016). The following figure and statistical information provides the declining

trend of the forest cover in Sri Lanka with the rapid expansion of population.

The pathetic situation is majority of agricultural activities, road development and housing projects *etc.* are subsidized by government tax revenue, without paying more priorities to the environment. Moreover, disregard of ascribed value, careless forest management, and deficiency in existing environment related laws in terms of its contents and implementation are led to large-scale of deforestation, which has now become an ongoing issue.

The recurring such actions of the people without considering the its importance and sufficient reforestation strategies have resulted in habitat damage, biodiversity loss, aridity and other disadvantages such as extinction, changes to climatic conditions, desertification, and displacement of populations *etc.* Further, Deforestation also has adverse impacts on bio sequestration of atmospheric carbon dioxide, increasing negative feedback cycles contributing to global warming, soil erosion and degradation into wasteland. Therefore, it requires a sustainable approach at each and every development activities and renovation of existing resources to fulfill people needs.

Proposed strategies for conserving forest cover in Sri Lanka

The Forest Department (FD) and Department of wild life conservation are major institutions that are responsible for forests in Sri Lanka. The FD has a Forest Policy, which elaborates the high priority and necessity of conserving the existing forest area. Moreover, we have forest and environmental laws, such Forest Ordinance, No 10 (1885) and No.16 of 1907, Fauna and Flora Protection Ordinance, No. 2 (1937), Soil Conservation Act, No. 25 (1951) and



Environmental Act No, 47 of 1980 and subsequent amendments *etc.* However, the diminishing trend of forest cover is still recurring and become very crucial at present. The large challenge is to maintain existing forest cover (27% in 2015) at the same level and to reach 30-32% by 2020, according to the Government policy; while achieving/controlling required national economic growth, infrastructure development to meet needs of growing population, urbanization, illegal forest related activities.. *etc.* as appropriate. In addition, it is required to review all factors, policies, plans and laws, which are connected to the forest resources and management; since some of them are outdated and not match with current scenarios in terms of its contents and applicability. Hence, this paper provides probable scenarios for conserving existing forest cover in Sri Lanka, following the below proposed recommendations.

1. FD is requested review the existing database of forest cover in Sri Lanka and establish a fresh data base together with Mapological/remote sensing/ GIS information to facilitate for further research and to take productive decision by policy makers. Suggested to have a digitalized data base for Expertise, Researchers and general public to access any time.
2. Review of existing policies and legislative instruments and enforce fresh policies and legislation to match with current needs of the nation and taking into consideration of provisions, commitments and opportunities of regional and international forest conservation strategy. The irrevocable national policy is mostly recommended, restricting frequent changes by the time to time changing

Government, which should be governed by the FD.

3. Review of existing Forest Sector Master Plan (1995) and prepare a revised version, incorporating both short-term and long-term viable action items, together with responsible institution/Officer and target dates to meet 2020 objective. The follow-up and monitoring of each items is more essential by an authorized officer. Further, suggested to incorporate “**conserve and utilize**” strategy to the revised version with sustainable management point of view. This will help all stakeholders to utilize the forest for development and to conserve the available forest resources at least at the same level (27%) for the betterment of the ecosystem and surrounding livelihoods.
4. Training, capacity building and skills development for existing staff of the FD, including field officers in terms of their scientific, technical and managerial capacities of forest resources and management is essential, since it is needed to perform their job role in productive manner and transfer the skills and knowledge to communities on how to manage and utilize the forest resources. Hence, it is suggested to budgetary allocation accordingly to accommodate the staff for attending seminars, workshops, training, local and foreign scholarship to acquire post graduate qualification and research capacity in this field.
5. Establish an online complain management system for general public to lodge any complaint in connection to the forest resources, securing the personal information of complainer, which could be a similar option that the police department is maintaining at present-“call -199”. This should be



- monitored by an Officer at FD and to take necessary rapid action with the help of respective areas police station.
6. Participatory management of Forest Resources with the participation/partnership of all the stakeholders, especially with private sector and general public contributions is more vital to increase interaction between community and forest by increasing the benefits of the forest to the communities living in and around the forests.
 7. It is required to strictly implement the existing forest conservation/environmental related laws and proposed revised law to control and discipline the public, who are engaged in illegal activities and encroachment.
 8. The FD had declared 60% of the forest covers as protected areas and multiple use of forest areas. The Department of Wild Life Conservation manages 40% of the forest cover as all protected areas. Apart from the above, the State Timber Corporation is responsible for extraction and sale of timber (FSMP, 1995). The forestry administration functions together with all decision making ability should be come under one forum and decentralized its identified functional authority to its existing territorial level forest office.
 9. Suggested to setup an effective forest fire management methodology (contingency plan) to conserve the forest resources from the sudden forest fire with the support of the Department of fire abrogates and Sri Lanka tri-forces.
 10. Suggested to adhere effective silvicultural practices, which is another branch of forest management; deals with the establishment, development, care and reproduction of forest trees.
 11. The history of forest management, since 1940 revealed that the management of forest has been carried out with the prime objective of obtaining timber. Then, the policy makers concentrated to involve rural community through social forestry, introducing fast growing and commonly grown tree species. After 1994, the concept of multiple-use of forestry becomes the center point of the forest management with the introduction of National Forestry Policy (1995). History, revealed that the large gap between demand and supply have been bridged, introducing fast growing trees, such as *Pinus*, *Eucalyptus*, *Acacia*, *Conifers (pines)* etc, which is not a healthy situation to the ecosystem and nature. Policy Makers are requested pay their attention to this area and go for necessary policy formation as appropriate to expand the natural forest cover.
 12. All decision should be supported with Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis and Environmental Impact analysis (EIA) report.
 13. Finally, it is recommended to consolidate relevant experts, those who have social science, scientific and engineering knowledge and experience



in this field to carry out a research and to recommend probable scenarios to conserve the forest cover in Sri Lanka. The strong scientific commitment is essential for deriving sustainable and applicable research findings and provide suitable recommendations in terms of protection, restoration, afforestation, reforestation, prevent forest degradation, enhance forest-based economic, social and environmental benefits, improving the livelihoods of forest dependent people...etc. Further it is required a total survey, categorization of forest as per current requirement, the area that can be used for economic benefit, administrative setting for forest management, use of forest land as tourist centers (eco-tourism), social and agro-forestry *etc.*

Proposed strategies for forest management- ‘the consistency approach’

The hierarchy of forest management in Sri Lanka has a top to bottom approach, which has uniform command, regardless of nature of issue, differences of social and economic contexts of each forest and people around it. The centralized system of management in most of the time is not compatible with the nature of the issues and dwellers around it. The decision makers should hear public opinion of particular area on nature of the issue, past experience on similar situation/issue of dwellers and applicable forest management methodology and should be formulated applicable, viable and productive forest management strategy by understanding broader aspects of the identified issue for maintaining green environment. This method was referred as **“consistency approach** of forest management, “take applicable decision,

according to the situation’. Nevertheless, we observe that there are high occurrence deforestation in the identified a few districts in Sri Lanka, due to the increasing trend of human activities; such as illegal activities, encroachments, developments, agriculture, irrigation, fuel wood *etc.* This is a conflict situations between development works and conservation policies of the government. Hence, the FD is requested to implement **“consistency approach”** to control and manage the ongoing deforestation activities by applying a right mechanism, according to the nature, location, volume of the issue. eg. If illegal activities and encroachments are high in the certain area, the existing law can be implemented. However, the same nature of issues were identified in the different location; then you may recommend multi-purpose forest management strategy, considering the situation of high prevalence of people/forest intersection or you may increase the value of the forests resources by increasing the benefits to the communities living around the forests, by way of community participation in forest management. Further, if government’s infrastructure developments are in place and exploited the forest trees, then more area of land around the said vicinity could be accommodated for reforestation purpose or minimize the environmental damages or sustainable utilization of forest resources *etc.* Accordingly, the **“consistency approach”** refers to take a right forest management decision, according to background of the problem. We should not strict in to one common method of controlling and managing the forest resources.

Conclusion

The forest resources are not being utilized by the human in a sustainable manner and has become an acute threat to the ecosystem. The constitution of Sri Lanka and forest policy



(1995) have broadly addressed to conserve the forest cover and the government expected to rise to 30-32% of the total land area by 2020 from the present level. Hence, forest policy and existing laws implementation mechanism must be strong and productive to safeguard the exiting forest reserve. In the recent past, the social and economic developments accelerated the exploitation of natural resources including forest, neglecting its ecological and environmental values. Hence, it is mandatory to review the existing policies, laws, intuitions and its operational processes, delegation of powers, responsible agencies to take action/planning/monitoring, management practices, statistical and mapological information of data base; considering the current technological advancement, actual current situation and demands. Similarly, the success of management of forest is far below the expected level. It is vital to share the knowledge from top to bottom level and existing forest should be preserved *via*, “consistency approach” and integrated system of forest management, bringing all stakeholders into a center point/forum. Such commitments, active participation and government support would transform Sri Lanka as Green Island.

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