

# **FORESTRY RESEARCH AND EDUCATION IN SRI LANKA**

By

**M.P.Sarath Fernando**

**Conservator General of Forests**



**Forest Department of Sri Lanka**

# FORESTRY RESEARCH

---

## Historical Perspective

- Small Silviculture Unit established in 1939
- Timber utilization unit established in 1949
- Early period → deal on basic and applied ecological research
- Benefits → successful establishment and management of plantations

- Another significant achievement was the development of the technology for the utilization of rubberwood
- During 1960s  1980s main thrust was reforestation and afforestation
- Thus focused on species/provenance trials, growth and yield studies, pest and disease control.
- Until around 1980 FD was the leading agency in the forest research (80%)
- Since 1980 mainly (around 60%) done by other agencies especially universities.
- Due to absence of national level plan, the efforts  fragmented and failed to contribute effectively.

- Establishment of National Forestry Research Committee (NFRC) in 1995, - addressed this issue to a certain extent.
- However, non-availability of forestry research agenda – hinder functioning of NFRC.
- National Forest Research Plan formulated in 1997 funding from FORSPA.
- Research implemented – by research division attached to the Forest Department
- Research activities are implemented through two forestry research stations
  - a. Low country intermediate zone research centre – *Kurunegala*
  - b. Up country intermediate zone research centre – *Badulla*


# Dissemination of information

---

- Publishing in Scientific journals  
thesis/dissertation, leaflets, newsletters and reports
- Forest Department recently established a Forestry Information Service with desktop publishing facilities.

# Trends in Forestry Development in Sri Lanka and its implication on research

---

- Today forest  treated as an ecosystem with well defined functions and structures.
- Needs for a holistic approach in forest management
- Single product oriented management is becoming less important
- Need to be given Development of innovative forestry practices, based on flexible modeling systems, integrating socio economic and ecological information.
- Thus requires a multidisciplinary approach for forestry research.

- Emphasized in forestry sector Master Plan in 1996
  - ➔ efforts to improve research capability requires a clear definition of the priorities and identification of appropriate research and technological development.
- Resources constrained in Sri Lanka
  - ➔ critical research addresses priority problems and is also demand driven.
- Adaptation of research results by various stakeholders
  - ➔ their perception of relevant of research.
- Thus priorities should be identified
  - ➔ involvement of the stakeholders

# National Forestry Policy in 1995

---

- To conserve forests for posterity, with particular regard to biodiversity, soils, water, and historical, cultural, religious and aesthetic values.
- To increase the tree cover and productivity of the forests to meet the needs of present and future generations for forest products and services.
- To enhance the contribution of forestry to the welfare of the rural population, and strengthen the national economy, with special attention paid to equity in economic development.

# Strategies to implement of National Forestry Policy

---

- Management of state and private forests and resources for the benefit of the present and future generations of Sri Lanka.
- Development of wood and non-wood forest products, industries and improved marketing arrangements.
- Strengthen institutional support for forestry development.
- Establishment of inter-sectoral linkages
- Recognition of international forest related conventions.

**During the preparation of the research plan following steps were identified as important to facilitate implementation of above strategies.**

- Development of a National Forestry Research Plan
- Establishment of National Forestry Research Network
- Strengthening the Forestry Information Service
- Identification of priority research areas needed to implement the Forestry Sector Master Plan Programmes and FYIP activities
- Strengthening the research capabilities of the Forest Department and other network partners
- Establishment of an optimal protected area system network
- Effective management of the protected area system
- Development of a system to monitor biodiversity and soil and water resources
- Improvement of institutional capacity and legislative frame work

# Priority Research Areas

- Table 1 : The Forestry Research Plan

Subject area	Problems identified	Research activities to be undertaken
1.Conservation Forestry	1.1 Development of sustainable management systems	1.1.1 Development and implement a concerted research plan to gather information required to develop and implement Management Plans for three identified conservation forests whose existence are most threatened.
	1.2 Progressive declining of key species	1.2.1.Impacts of alien/introduced species in natural forests
		1.2.2 Reproductive biology and regeneration ecology of threatened species.
	1.2.3 <i>Ex-situ</i> conservation of endangered and threatened species.	

<b>Subject area</b>	<b>Problems identified</b>	<b>Research activities to be undertaken</b>
2. Multiple use management and commercial plantations	2.1 In adequate knowledge and experience in multiple use management	2.1.1 Socio economic research on joint forest management
		2.1.2 Establishment of permanent sample plots to study forest dynamics
	2.2 Over visitation in ecotourism areas	2.2.1. Study the optimum facility levels and develop an appropriate zoning system.
		2.2.2. Study the socio cultural impacts of ecosystem
	2.3 Issues relating to harvesting of non-wood forest products	2.3.1 Monitor/study the harvesting trends/levels of non-wood forest products in natural forests and their impacts through the establishment of permanent sample plots.
		2.3.2 Conduct studies on reproduction/propagation and ex-situ conservation of some identified non-wood forest products species
		2.3.3 Study the methods and limits of sustainable harvesting
	2.4 Management of commercial plantations for improved productivity	2.4.1 Studies on propagation, growth and harvesting techniques
		2.4.2 Studies in community involvement in commercial plantation management

<b>Subject area</b>	<b>Problems identified</b>	<b>Research activities to be undertaken</b>
3. Forest Utilization and forest based industries	3.1 Under utilization of available resources including home garden species	3.1.1 Collate and compile information on properties of wood and disseminate the information
		3.1.2 Comparative studies of lesser known wood species in relation to those of popular species on their wood properties
4. Agro forestry and social forestry	4.1 Lack of understanding of components and well defined technology	4.1.1 Compilation of a list of suitable species combination for home gardens in different climatic zones giving details on appropriate species mixtures and silvicultural techniques
	4.2 Lack of adoption of available technology	4.2.1 Investigate the reasons for not practicing the available agroforestry models by farmers  4.2.2 Develop appropriate management strategies for resource use

Subject area	Problems identified	Research activities to be undertaken
5. Bio Energy	5.1 Confinement Bio energy fuel wood in the domestic sector and non use in commercial sector	5.1.1 Research on the establishment of energy plantation a) Dendro thermal energy, short rotation energy crops such as Grilicedea b) Biodeisal crop such as Jetropa
		5.1.2 Research on efficient conversion methodologies
6. Effect of Climate Change	6.1 Non existence of data on effects of climate change in forestry	6.1.1. Research on effects of on climate change on the composition and quality of forests.
		6.1.2 Research on mitigatory effects of forestry on the impacts of climate change

# Institutional Arrangements for Forestry Research Committee

---

- Multidisciplinary team - eminent forestry scientists and forest industrialists and Forest Department officials.
  - Prioritize and make recommendations to appropriate authorities on research required in the implementation of the National Forest Policy
  - Direct, co-ordinate, monitor and evaluate forestry research in Sri Lanka to meet the objectives of the National Forest Policy

# Forestry Education in Sri Lanka

---

## Formal forest education within Forest Department

- First step in 1898 – in class in general forestry school of Agriculture of Peradeniya.
- First forestry training course started in 1955, where two training courses. 03 months duration one for RFO and the other for Forest Guards. One training camp in dry zone while the other in wet zone.
- New school established in Trincomalee in 1958. One year training programme started for RFOs and Forest Guards.

- 1963 – RFOs course converted to two year training programme.
- Later RFO course was abandoned.
- 1983 – Two year training programme recommenced along with the one year programme of Forest Guard which continued.
- Due to security reasons, Trincomalee school has to be closed.

- Sri Lanka Forestry Institute established in Nuwara Eliya in 1990.
- Sri Lanka Forestry Institute has three prime objectives.
  - To impart knowledge, develop skills and attitudes of the in service forestry personnel of technical and sub-technical grades enabling them to perform their duties and tasks efficiently in the protection, development, management, conservation and utilization of forest resources.
  - To enhance skills and update knowledge of in-service forestry personnel to obtain participation of local communities in the development of non-forest wood resources through programmes of social forestry.
  - To provide training on forestry related subject areas to clientele of other institutions including non-governmental organizations.

- Present two year Diploma course for RFOs
- One year certificate course of Forest Guards
- Forestry Diploma Course – wide range of forestry and allied subjects – full time residential course training of RFOs of the FD, and the Assistant Regional Managers of State Timber Corporation.
- Certificate course cater to Forest Guards of FD of Coupe officers of the State Timber Corporation


## Short term training courses

- General Forestry, Social Forestry, Forestry Extension, Forest Surveying, Forest Law Enforcement and Nursery Techniques, Agro Forestry, Social Forestry, Leadership training.
- These are one or two weeks duration.
- Subjects specific in-service training courses for forestry personnel of technical and sub-technical grades as in certificates training.

# Academic Education in Forestry

---

- **University of Sri Jayawardenepura**
  - **Department of Forestry and Environment Science**
    - ➡ under graduate and post graduate degrees
      - First degree MSc. Forestry in 1983
      - Course consisted of 28 subjects in 6 modules
      - Up to now around 150 personnel passed out
    - **Target group**
      - ➡ personnel employed in forestry environment and natural resources sector, and to lesser extent to others wish to pursue careers in these sectors

- 1996 started under graduate programme and forestry and environmental science
- Annual intake only 40
- Objectives
  - develop decision making knowledge and skills required to manage forest resources and the natural and man made environment
  - Addition to tutorials and practicals delivery mechanisms such as seminars, excursions, internship, case studies, team work, independence studies and project work
- 3<sup>rd</sup> year assignment  field and factory assignment
- Help – acquire real working knowledge
- Consist of 3 year General Degree and 4 year Special Degree

- Faculty of Agriculture – University of Peradeniya

- Now offers BSc. Agriculture Technology and Management part of the course is principles and applications of forestry and agro forestry
- Help to give a comprehensive understanding potential and forestry and agro forestry

- First two years  Principles of Forestry


- Later associated subjects



forestry soils and soil fertility  
management, economic principles,  
organizational management,  
land and water resources  
engineering

- In 3rd year specialization modules
  - Plantation Management and Forestry and Agro Forestry Systems, Tree Diversity and Improvement, Forest Management and Silviculture, Commercial Nursery Management and Conservation and Management and Medicinal Plants
  - Six months Scientific Research relevant to forestry and agro forestry

## Post Graduate Course

- PGIA offers one to one and half year taught courses and research degrees
- MSc. Environment Forestry 
  - Covers Forest Ecology, Principles of Agro Forestry, Plantation Forestry and Environment, Forest Influences on Soil, Water and Climate, Biodiversity, Policy and Legislations Related to Forestry and Environment, Rural Development Forestry, Natural Resources Management, Urban Forestry and Arboriculture

- Optional courses are
  - Forest Systematics, Forest Tree Improvement and Genetic Conservation, Economics of Environmental Forestry, Forest Products and Utilizations, Watershed Management, Quantitative Techniques in Forestry, Forest Growth Modeling, Advances in Agroforestry, Biometrics
- Normally offers 5 - 10 students for MSc. In Natural Resource Management



- Resource Economics Management opportunities are taught
- PGIA also offers Master of Philosophy and Doctor of Philosophy based on research
- Subject areas ranging from pure forestry, agroforestry, natural resource management, GIS application in Natural Resource Management