Depletion of Tropical Forest Resources, Prevention Strategies,
Challenges and Implications for Action

Mangala De Zoysa and Nesha Dushani
Department of Agricultural Economics, Faculty of Agriculture, University of Ruhuna, Sri Lanka

Background
Tropical forests are found in areas with high temperatures and generally high annual rainfall, and consisting closed canopy of broad-leaved evergreen trees. Although the tropical forests cover less than 2% of the Earth's surface, they are home to about 30 million species of plants and animals. Tropical forest provide livelihood for forest dwellers, protect and enrich soils, regulate hydrologic cycle, and help stabilize the global climate. Presently, area covered by tropical forests is rapidly shrinking. Wood shortages, land degradation, biodiversity loss and global warming are been recognized as main negative impacts. This paper review literature and examine the depletion of tropical forest and implementation of prevention strategies. Challenges to protect, manage, and restore the forests and implications for actions developing effective measures are discussed.

Depletion of Tropical Forests and Forest Resources
At least 250 million hectares of tropical forests has vanished between 1980 and 1995. Tropical forests are disappearing at a rate of 80,000 acres (32,000 hectares) per day. The global per capita forest area had fell from nearly 1.2 ha in the 1960 to 0.6 ha in 1990 and projected to be less than 0.2 ha by 2020. The global wood consumption would be doubled over the next 30 years. More than half of cropland expansion has occurred in natural forest while another 30% occurred in disturbed forests during 1980 to 2000. Over-grazing threatens the natural pastures in the entire tropical world. Almost half of the trees cut are used for fuel and charcoal. Illegal logging makes losses US$10 to $15 billion per year from public lands. Tourism causes depletion of natural resources and pollution. Government policies for rural development largely promoted tropical forest destruction. Tropical forest depletion is resulted with destruction of the land, erosion, and flooding; species extinction and loss of renewable resources; and reduction of carbon sink.

Past Strategies Implemented to Prevent Forest Depletion
Conservation organizations emphasized straightforward protected areas approach in1980s. As illegal logging continued unabated, attention shifted to market-based good forest management. The ITTO was established in 1986 to facilitate international timber trade and sustainable management of its resource base. Tropical Forests Action Plan was launched in 1987 to eradicate deforestation in the tropics. The forest policy of World Bank in 1991 declared an end to tropical deforestation as its central goal. The "Earth Summit" in 1992 implied the integrated conservation and development programs" (ICDPs). Community forestry evolved in 1980s as a strategy to address widespread forest loss and its adverse consequences, through participatory forest management. The major concerns of the Millennium Development Goals were based on forest dependent people; their energy from biomass fuels; and medicinal plants as primary source of health care. Kyoto Protocol proposed to use international carbon markets to slow deforestation.
World Bank was making implementation of international Reducing Emissions from Deforestation and Degradation (REDD) mechanism. The Forest Stewardship Council (FSC) was established in 1993 to provide forest certification.

**Major Challenges in Combating Forest Depletion**

Deforestation is still a reality at the rate of depletion around 13 million hectares per year. The fundamental drivers of depletion are shifting from subsistence-driven deforestation to industrial-driven in recent decades. Most developing countries could not set aside more than 15% of forests as protected areas. Many rural people survive with subsistence uses and cash income from forests. The demand for more forest resources is growing with the increasing population and shifting socio-economic conditions and savors financial crisis. The large-scale plantation project in have neglected need to diversify species and to conserve some natural forests in the long run proved disastrous. Many community-based forestry management strategies have currently become inappropriate without external support to overcome technical, legal and financial barriers. Large-scale agriculture development programs, community forestry operations, other industrial activities and improvement of road networks created difficulties to implement the conservation strategies. Globalize financial markets and a worldwide commodity boom are aggravating industrial logging, mining and large-scale agriculture as the dominant causes of forest depletion. Eco-certification has hampered by corruption and weak governance resulted with leakage of non-certified products into markets. The Kyoto Protocol was defeated for political reasons. Developing countries opposed carbon trading as their national sovereignty issues are sensitive. Clearing and burn tropical forest in order to grow bio-fuel crops would lead to severe deforestation and release more carbon into the atmosphere.

**Implications for Actions to Address Challenges for Conservation**

Tropical forests management must be seen as sustainable tools for conserving the biological diversity, averting climate change and enhancing life context. The international agreements and conservation programs have to be coordinated at sub-regional and regional levels by the establishment of appropriate mechanism for coordination, consultation, and collaboration. Consumer-education campaigns targeting conservation interests and strategic forest related industries would be able to slow harmful forest depletion. Dialogue among industrial, scientific and conservation interests has become a vital importance with industrialization trends. Multi-purpose forestry has become a form of sustainable forest management and sustains the essential functions and components of the tropical forest ecosystem. Multipurpose forestry programs could be flexible in supplying forest services and products to meet changing social, economic and environmental circumstances. Community-based, forest governance influences shape tropical forest conditions in diverse ecological and institutional settings. Community forest governance would promote the sustainability of forest management with growing array of stakeholders, changing to multi-centric structures, and differences in scales, goals and means of forest management.

**Conclusions**

Tropical forest resources have been over-exploited and led to severe forest depletion despite the implementation of wide range of forests conservation strategies. Challenges created by shifting drivers have to be efficiently addressed by appropriate strategies which are flexible in supplying forest services and products to meet changing social, economic and environmental circumstances.