

Earth Day 2009*

Sri Lanka's Forest Cover: What We Know and What we Don't

By Ram Alagan

Introduction

Today, April 22 is Earth Day. It is an opportune time to reflect on the forest resources of Sri Lanka, a tropical island nation in South Asia that has a 2,500 year old civilization built mainly on agriculture. Sri Lanka has been known as the "land of waters." The country which is comparatively small with a land area of 65,000 sq km is blessed with substantial rainfall and a network 103 major rivers and several hundred minor streams that mainly originate in the central highlands and flow in all directions to the Indian Ocean. The weekly magazine Economist (London) once described Sri Lankans as "veritable dam builders" for their long tradition of building dams and reservoirs - locally called "tanks" - to collect water to cultivate rice, the staple of the nation. Although, Sri Lanka is one of the smaller countries in Asia yet, its forests supports a very high degree of biodiversity per unit area. Needless to say adequate forest cover is crucial to sustain the delicate environmental balance and the nation's economic life, especially agriculture. But for a variety of reasons Sri Lanka's forest cover has declined drastically in the past one hundred years and is in danger of further diminishing in size if steps are not taken to arrest the decline.

Forest Cover

When the British took over the island in the early in the early 19th century it is likely that Sri Lanka's forest cover probably was as high as 90%. Starting in the 1830s the British cleared large tracts of forest mostly in the hilly central region forest for cinchona and coffee and later for tea and rubber plantations. In the 1880s after the British had spent fifty years clearing jungle for plantations the forest cover was estimated to be around 80%. By the time the British left the island in 1948 the forest cover was down to about 54% to 50%.

For a variety of reason that range from pressure of population growth that more than tripled from about 7.0m at Independence in 1948 to 20.0m in 2007 to indiscriminate cutting of forest for agriculture and human settlement and exploitation of forest resources for short term gain, Sri Lanka's forest cover continued to decline over the past sixty years. The estimates of forest cover that currently exists vary (Table 1).

Table-1: Estimates of Sri Lanka's Forest Cover 1989-2004

No	Year	Source	Findings
1	February 1989	J.R. Purey-Cust http://www.nzjf.org/free/issues/NZJF33_4_1989/FCF16FB7-F9C1-4944-88C5-CEFEAE561DAB.pdf	The study highlights an interesting if in places alarming situation: Between 1956 and 1981/83 the natural forest cover of Sri Lanka fell from 2.9m ha to 1.75m ha. If reduction continues at this rate, all natural //(including parks and reserves) will be gone by the year 2030. Some of this reduction is due to large agricultural development schemes necessary to settle people on the land and to achieve some measure of self-sufficiency in food. But the prime cause remains shifting cultivation and cattle grazing, over which there is little control.
2	1992	N.D.R. Weerawardane Forest Department, Sri Lanka http://apfisn.net/country/report/Srilanka.pdf	According to the forest cover map prepared in 1992, Sri Lanka's closed natural forest cover was 23.9% of the total land area which amounts to about 1.5 million ha. Including sparse forests, total natural forest cover is 30.9% of the land cover which is around 2.0 million ha. The average rate of deforestation during the past few decades, both planned and unplanned, had been around 42,000 ha per year (Bandaratillake, 2001).

3	1995	<p>Cyril Bogahawatte: http://www.idrc.ca/en/ev-8264-201-1-DO_TOPIC.html</p>	<p>The study was carried out against the backdrop of rapid forest loss in Sri Lanka. The total area of natural forests in the country has decreased from 1.78 million ha. in 1983 to 1.58 million ha. in 1992. While more than 28% of Sri Lanka's total forest land is reserved and administered by either the Forest Department or the Department of Wild Life Conservation, there has been considerable forest loss within the country's protected forests.</p>
4	1996	<p>Perera and Ryutaro Tateishi http://www.gisdevelopment.net/aars/acrs/1996/wg1/wg1002pf.htm</p>	<p>Sri Lanka has very limited forest coverage (37%) of the total land area, and this area is also decreasing at an alarming rate.</p>
5	199?	<p>Hemantha Withanage http://www.wrm.org.uy/countries/SriLanka/debt.html</p>	<p>Sri Lanka's Forest cover has been reduced to 19% (year note stated) from 24% in 1990, while the green cover has been reduced to 47% (year not stated) from 70% in 1990. Government institutions and the non-government sector promote environmental conservation, but are unable to control this destruction.</p>
6	2000	<p>Data Ranking http://dataranking.com/country.cgi?LG=e&CO=198#ee</p>	<p>According to Data Ranking Sri Lanka had forest cover of 30.0% in 2000</p>

7	2000	Food and Agricultural Organization	Assessment of forest resources of 1992 of Sri Lanka indicates that the total forest cover including forest plantations is around 32.2 % of its total land area. The percentage of closed-canopy natural forest areas is 23.9%, sparse and open forests is about 7.0%, and that of the forest plantations is about 1.3% of total land area in Sri Lanka.
8	2000	Mongabay.com http://rainforests.mongabay.com/deforestation/2000/Sri_Lanka.htm	According mongabay.com Sri Lanka has 29.9% or about 1,933,000 hectares forest resources. Of this, 8.6% or roughly 167,000 hectares is classified as primary forest. Change in Forest Cover: Between 1990 and 2000, Sri Lanka lost an average of 26,800 hectares of forest per year. This amounts to an average annual deforestation rate of 1.14%.
9	2001	Millennium Development Goals http://www.mdg.lk/inpages/thegoals/goal7_environmental_sustainability.shtml	Sri Lanka natural forest cover has decreased from 80% in 1881 to 24% in 1990. From 1990 to 2001, land covered by dense forest has further decreased by 6.6%.
10	2001	Mangala DE ZOYSA http://enviroscope.iges.or.jp/modules/envirolib/upload/370/attach/p57-68_SriLanka.PDF	The establishment of forest rules and regulations goes back to the King Dutugamunu period of 161 to 137 B.C. Generally, the community managed their forest resources with great care, while protecting the natural balance of the ecosystem. A drastic change in land use policy after foreign invasion resulted in denudation of the natural forest. The forest reserve of nearly 80% in 1886

			was reduced to 70% in 1900, 44% in 1956, and is nearly 25% at present. Opening up of plantation crops, expansion of agriculture, land settlements, rising incomes, and changing life styles have caused over-exploitation of the forest.
11	2002	Jagath Ratnayake, Mahinda Abeykoon, and Yann Chemin http://www.gisdevelopment.net/aars/acrs/2002/for/015.pdf	Today Sri Lanka's forest cover amounts to approximately 2.1 million hectares representing 32% of the total land area. Of this extent 2.04 million hectares represent natural forest and 0.7 million hectares planted forest (NPPD, 2002). Of the area under natural forests, 1.58 million hectares are close canopy forest covering 23.9% of the land area and 4.6 million hectares sparse forest covering 7.0% of the land area.
12	2004	S. SOMARATNE and A. H. DHANAPALA SpringerLink http://www.springerlink.com/content/k4767w0101361028/?p=97dcf96ff4974924aab95955ad024f4d&pi=0	Based on remote sensing data supplemented by field observations, the latest figures for closed-canopy indigenous forest cover indicate that it now occupies only 23.87% of the land area.

Source: Table constructed by the author.

While the above estimates of forest cover vary we can conclude that Sri Lanka's current natural forest cover is a little less than 25% of land area or about half of what the country had at Independence. If we add planted forest to this figure the area is probably around 30%. However, these figures should be taken as very crude estimates for the following reasons:

- The studies on Table 1 have used different methodologies and had different goals.
- Some were not all-island surveys but were limited to some parts of the country, especially because the on-going war prevented the researchers from visiting the war areas for field observation.

The Civil War

We shall return to the need for a more reliable estimate of forest cover later in this review. But now we want to address the reasons for the sharp decline in the forest cover that the above data clearly establishes. The commonly identified reasons include extension of agricultural land, settlement expansion, legal and illegal logging to meet the growing demand for timber and the demand for fuel-wood. We want to focus on two factors that do not get much attention in the writing on the subject. One is the twenty five year civil war and the other is the 2004 December tsunami.

At the height of the power of the Tamil insurgent group Liberation Tigers of Tamil Eelam (LTTE), it controlled about one third of the land area of Sri Lanka in the north and east. This included much of the forest land in that region. Their occupation resulted in the destruction of forest for the following reasons. First, they moved a substantial population from the northern peninsular to the Vanni region that necessitated new settlements in hitherto forest areas that were cleared. Second, they got into the lucrative timber business cutting down forest trees. It is hard to make an accurate estimate of the forest that was lost for these two reasons but almost certainly the extent is not inconsequential.

The government has made its own contribution to forest clearance for reasons that are connected to the war. To prevent the insurgents from posing a threat to the safety of security personnel traveling on the main roads in the north and east the government has cleared thousands of acres bordering the roads in the war areas. More recently the government has cleared jungle land to house IDPs from the war.

Mangroves from several coastal and inland lagoons along the eastern northern provinces have been cleared due to security threats by both by the government as well as the Tamil insurgents.

Tsunami

After tsunami damage in December 2004, several thousand acres of forest lands were converted into re-settlement areas along the coastal belt to provide safe habitats for tsunami victims. One has to concede that the tsunami victims needed housing and some forest area had to give way to new settlements. However, the choice of location was not always carefully evaluated. The result is some new settlements that have created serious adverse environmental consequences. The 500 acre Siribopura tsunami resettlement housing scheme in Hambantota is one of the best examples. It has not only reduced forest cover in the area but has also increased human-elephant conflict, and environmental threats.

Fig 1: Housing Development in Siribopura



Source: Ram Alagan, Tsunami Research 2004

Another example is the tsunami resettlements program in Thirukkivil lagoon in Ampara District where several hundred houses have been constructed in very close proximity to the lagoon. In our visits to the scheme we observed that the settlement has been poorly planned not allowing for the usual livelihood needs of the settlers. Consequently the residents have begun to encroach on the fragile lagoon area threatening the ecology of the region

Fig 2: Tsunami Housing Development in Thirukivil Lagoon Vicinity in Ampara District



Source: Ram Alagan IUCN-CIDA Tsunami Research, 2008

Future

At the time of this writing the indications are that the war will soon come to an end. If and when peace is reestablished steps must be taken to undertake a fresh scientific survey of Sri Lanka's forest cover and forest resources. Such a survey should use the latest technology such as Remote Sensing, Geographic Information Systems, and Global Positioning Systems to gather data. It should be a coordinated effort that includes state institutions, universities, non-government organizations that are working in the field of forestry environment and the private sector. The data protocols that are established should have open access so that the public is made aware of the actual conditions that prevail and a meaningful and broad national discourse can take place as to how we should manage our forest resources.

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*Earth Day, founded by the US Senator Gaylord Nelson in 1970 as an environmental teach-in, falls on April 22. It is the beginning of spring in the Northern Hemisphere and the beginning of autumn in the Southern Hemisphere. Today Earth Day is celebrated in many countries including Sri Lanka.