GUEST EDITORIAL

BLAME THE FORESTS FOR ENVIRONMENTAL DEGRADATION AND BIODIVERSITY LOSS: IN DEFENCE OF THE TROPICAL FORESTS

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Forests are a universal asset, and to blame tropical forests for today's environmental mess up and biodiversity loss is distressing to a forester. On the one hand, as published by the IUFRO 1988 Bellagio Task Force on Tropical Forestry Research, to the people of 33 developing countries, forests provide valuable export income needed for physical and social development of their countries. The forests supply energy for cooking and heating for almost 2.5 billion people, and food security and livelihood for some 200 million forest dwellers. They are essential to the quality of the earth's atmosphere, mitigating climate in general. These growing concerns had led *Times Magazine* to vote tropical forests as 'Planet of the Year 1989'. On the other hand, tropical forests are the locus of more than half of the world's biodiversity, though proven herbal discoveries for the last century came from mainly non-tropical forests, for example species from the genus *Artemesia* for antimalaria, *Ephedra* for bronchodilator, *Rauwolfia* for antihypertension, *Digitalis* and *Salix* barks for reducing fever, *Salix alba* (aspirin) for curing headache, and *Catharanthus* (e.g. rosy periwinkle) for anticancer. This is of value to everyone—overall world trade in neutraceutical, herbal drugs and medicinal plants totalled USD60 billion in 2000 and is expected to increase to USD5 trillion by 2050. Unfortunately, it will be a loss to all when forests are reduced and/or species become rare, endangered, vulnerable and extinct. When forests are cut down or burnt, they become a source of carbon dioxide (CO_2) emission into the atmosphere. Forest reduction deprives forest dwellers of their food security. Between these competing claims for attention, there is, however, a need for the right perspective on the role of countries in the damage being done to the forests and environment. The following tables and figure provide informative and comparative data to help place these issues in perspective.

First, the area under forest remains much larger in Indonesia and Malaysia than in the developed countries (Table 1), even though the rates of loss are now greater. Roundwood production is much higher in the USA than in any South-East Asian countries, and about as large in Germany as in the Philippines and Malaysia. Reforestation is greater in the Philippines than in the United Kingdom (UK) or France. The blame on the forests for environmental mess up and biodiversity loss are consequences of damages done many decades before 1980s and not just damages done 10 or 20 years ago! Therefore, readers are directed to FAO (2011) for statistics on the extent of forest cover in 2010 and annual rate change for 1990–2000 and 2000–2010, as well as production, trade and consumption of woodfuel, roundwood and sawnwood in 2008, country by country. Further, even including the 1982–1983 forest fire, Borneo lost less than one-fifth of the amount of forests (2–3 million ha) than the USA alone lost (14 million ha) to fire from 1973–1986.

Second, the amount of carbon stored both in vegetation and soil (Table 2) is high in tropical forests and tropical savannas as compared with temperate forests and temperate grasslands, indicating that tropical ecosystems are efficient carbon sinks that eventually help to mitigate the adverse impacts of climate change—a transboundary issue indeed, and their destruction diminishes the natural carbon sinks. Readers are again directed to FAO (2011) for statistics on carbon stock and stock change in living forest biomass in 1990, 2000, 2005 and 2010, country by country. The presence of wetlands in tropical regions compliments other ecosystems in addressing climate issues.

Table 1 Land under forest cover 1981, 1986 and 1989; roundwood production 1985–1987 and average annual reforestation in the 1980s, by temperate and tropical countries[1]

Country	Land under forest cover (% of total)			Annual roundwood production ('000 m^3)	Average annual reforestation ('000 ha)
	1981	1986	1989	1985–1987	1980s
United States	31.0	28.9	28.3	485760	1775
Germany	30.0	30.0	29.5	31583	62
Australia	13.9	13.9	13.5	19907	62
Netherlands	na	8.1	8.0	1118	2
United Kingdom	na	9.0	5.7	5082	40
France	na	26.6	26.6	39890	51
Belgium	na	21.0	21.0	3376	19
Denmark	na	11.4	11.2	2236	na
Malaysia	66.0	60.0	57.8	32000	25
Indonesia	75.0	72.5	60.0	158075	164
Philippines	31.0	24.5	21.5	35822	63
Thailand	47.0	35.0	28.0	36900	31

na = not available; [1]Wan Razali (1990), WRI (1990)

Table 2 Estimates of global carbon stocks in vegetation and soils to 1 m depth[1]

Ecosystem	Area (mil km^2)	Aboveground carbon (vegetation) (Gt C)	Belowground carbon (soils) (Gt C)	Total
Tropical forest	17.6	212	216	428
Temperate forest	10.4	59	100	159
Tropical savanna	22.5	66	264	330
Temperate grassland	12.5	9	295	304
Wetland	3.5	15	225	240

[1]IPCC (2001)

Last but not least, the ranking of countries by greenhouse gas emission from all sources shows Indonesia in the 14th place, Thailand 22nd and Malaysia 26th in 2004 (Figure 1). On a per capita basis, the top 10 polluters for 2004 and 2007 are still mostly countries in the temperate world, namely, USA, Russia, Japan, Germany, Canada and UK where industrialisation has advanced and developed these countries. Although some parts of China, India and South Korea are situated in the subtropical zone, they are also prominent polluters and are also ranked the top 10.

Therefore, countries with tropical forests do not, in general, contribute to the present state of environmental degradation and biodiversity loss from the forests. Nonetheless, the need for sustainable management of the forests is not denied in order to avoid further environmental degradation and biodiversity loss. The past philosophy of forest management had emphasised more on short-term economic profitability as the bottom line. The 20th century notion about forest management was 'anything without monetary value has no value, and anything with immediate monetary value is wasted if left unharvested'. This notion of forest exploitation must eventually be replaced by the 21st century conservation, protection and wise use of forests leading to the sustainable management of the forests. Forestry as a profession must be founded on documented biological and ecological truth

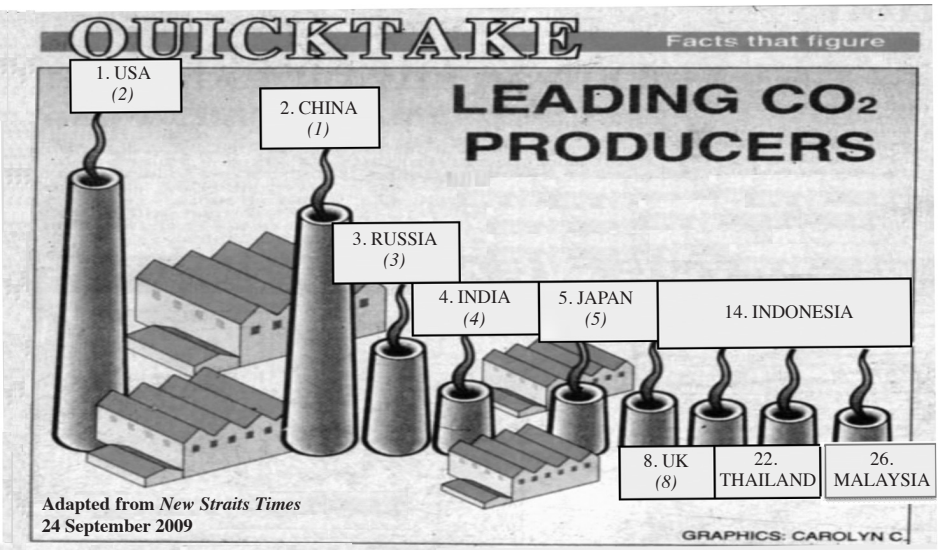

Figure 1 Leading CO_2 producers in 2004 (top 30 countries) and 2007 (top 10 countries; ranks in brackets and italics)

as 'new forestry science' or 'scientific forestry' and 'progressive forestry'.

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