

## **Carbon Funds and Carbon Sinks**

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Green house gas emission, global warming and climate change are considered to be among the most serious environmental questions at present. In relation to the discussions on global warming and climate change, carbon emissions and carbon sinks, it is an obvious thought, to compare a country's (or continent's) carbon emissions with the carbon sinks of the same country or continent. The following thoughts may be considered.

When the carbon sinks of a country or continent are equal to or greater than their carbon emissions, that is an environmentally stable condition, in relation to carbon emissions. In case there is no deficit in this area, one may then say that a country is carbon neutral, which is a good situation for a country or continent. In case there has been a deficit in this area for a given country, it may be enquired whether the country has an obligation to (i) create adequate carbon sinks in the same country, and (ii) lease adequate carbon sinks in another country, to reach a carbon neutral condition, with concomitant support to sustainable development.

Forests are considered to be carbon sinks and can convert about 10 tons of carbon dioxide into biomass per hectare each year, with 500 to 1000 trees per hectare. These estimates are used for the voluntary carbon standards of the voluntary carbon trading according to the Kyoto protocol. This would give an indication of the capacity of the carbon sinks of a country, when this is summed up for the forests of a country. When this is compared with the carbon emissions of a country, an approximate picture of a country's carbon profile is obtained, which may be

- a) Carbon neutral, (carbon emissions and carbon sinks are equal).
- b) Carbon producing, (carbon emissions are larger than the carbon sinks).
- c) Carbon absorbing, (carbon emissions are smaller than the carbon sinks).

In the event that a country is in need of additional carbon sinks, this could be fulfilled through the oceans, which may lead to the acidification of the oceans over time. An attractive and stable alternative would be to develop suitable carbon sinks (e.g. new forests) to meet this requirement. These forests would need to cover a sizable cumulative area to

meet these needs, and may be developed where this is feasible. In order to achieve this, best practices in forestry and water-shed management may be essential. As this author understand this, India, South Asia, East Africa, and the UNEP have considerable experience and know-how in this for the tropical regions (UNEP; United Nations Environmental Program). In order to achieve this, with the involvement of these countries and the UNEP, it may be beneficial and essential, for the UNEP to become a UNEO (UNEO; United Nations Environmental Organization). It may be envisaged, that such a framework may make it possible, for existing forests to be conserved, and several 100 million hectares of new and additional forests to be developed over time, in order to achieve carbon neutrality for most countries.

This would open the way for a country to become greener and carbon neutral.

#### References

A 40 yrs old pine tree would yield about 2 cubic metres of wood (trunk, branches, roots). Given the density of pine wood at 0.4 gm/cc, this would be close to 800 kg of wood, over a 40 yr period. There would be about 500 of these per hectare, in a dense pine forest. The formation of 20 kg of dry biomass each yr, is equivalent to the conversion of 30 kg of carbon dioxide into biomass.

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