

# CARBON CALCULATIONS

Our Cockpit Country carbon sequestration calculations follow exactly the methodology used in the Final Report on Jamaica's Greenhouse Gas Emissions Inventory (JGHGEI) 2000-2005, prepared by Claude Davis and Associates for Meteorological Services, Jamaica in 2008.

The areas of different types of land use (Primary Forest, Secondary Forest, Plantation Forest etc) were calculated using aerial photographs (2001) where available and otherwise using satellite images (1998).

These areas were then combined into six major forest classes as defined by JGHGEI.

*Table 1 Mass of carbon / carbon dioxide **absorbed** by Forest within Cockpit Country boundary*

GHG Inventory Class	Total Area (ha)	Carbon Absorbed per year (tonnes / ha)	Total Carbon Absorbed per year (tonnes)	Total CO <sub>2</sub> Absorbed per year (tonnes)
Tropical Rain Forest(Natural Forest)	37,890	4.51	170,781	626,198
Tropical Rain Forest(Plantations: Other Species)	6	9.66	59	215
Tropical Rain Forest(Plantations: Pine)	42	9.39	390	1,431
Tropical Moist Deciduous Forest (Natural Forest)	18,520	2.91	53,967	197,879
Tropical Dry Forest	7,048	1.44	10,176	37,312
Tropical Mountain Systems (Natural Forest)	18,768	4.48	84,020	308,072
<b>Total Absorbed per year</b>	<b>82,273</b>		<b>319,393</b>	<b>1,171,107</b>

*Table 2 Mass of carbon / carbon dioxide **emitted** by Croplands within Cockpit Country boundary*

GHG Inventory Class	Total Area (ha)	Carbon Harvested per year (net) (tonnes / ha)	Total Carbon Emitted per year (tonnes)	Total CO <sub>2</sub> Emitted per year (tonnes)
Tropical Rain Forest zone (Cropland)	22.3	40.0	894	3,277
Tropical Moist Deciduous Forest zone (Cropland)	3,589	18.4	66,039	242,144
Tropical Dry Forest zone (Cropland)	1,379	7.2	9,929	36,406
Tropical Mountain Systems zone (Cropland)	4.7	18.4	87	318
<b>Total Emitted per year</b>	<b>4,995</b>		<b>76,949</b>	<b>282,146</b>

Net emissions are obtained by subtracting CO<sub>2</sub> emissions (Table 2) from CO<sub>2</sub> absorbed (Table 1) giving:  
**242,444 tonnes of carbon (equivalent to 888,960 tonnes CO<sub>2</sub>) absorbed per year**

## VALUATION

The value on this carbon sequestration can be calculated using the Social Cost of Carbon (SCC). This is the cost to humanity over the next 100 years (or more) of emitting one tonne of carbon today. There is wide variation in estimates of the SCC: for example, the Intergovernmental Panel on Climate Change (IPCC) Summary for Policy Makers showed a range of values from US\$10 to US\$350 per tonne of carbon. We have used the IPCC recommended median value of US\$43 /tC (US\$12 /t CO<sub>2</sub>).

**Annual Value** = 242,444 tonnes x US\$43 = **US\$10,425,092** or **J\$896,557,912** (converted at 86:1).

Assuming that Cockpit Country will continue to absorb this amount of carbon every year, we can calculate the Net Present Value (NPV) of this sequestration. But we need to apply a discount for the future: after all, everyone prefers to have money in their pockets today, rather than wait for a year! So we have used a generally-accepted, long-term discount rate of 1.4% and this means that the NPV of Cockpit Country' carbon sequestration over the next 100 years is US\$10,425,092 \* (1-1.4%)<sup>100</sup>

**i.e. Net Present Value = US\$562,828,716** or **J\$48,403,269,604** (at 86:1).