Slide 1

Potential use of PNG case study findings in relation to UNFCCC reporting requirements

Reporting on Deforestation under Kyoto Protocol:

Kyoto Protocol Annex B countries have to report on land and carbon stock changes (deforestation) under article 3.3

Reporting methods have been established under the IPCC Good Practice Guidance for LULUCF (2003)

Annex B countries have possibility to report at three different levels of certainty (Tier1 to Tier3)

In the event that PNG should have to report on deforestation with the same rules as Annex B countries, we will have the following situation:

Slide 2

ACTIVITY DATA
3.2.1.1.1.3 Choice of Activity Data for Change in Carbon Stocks
(Pg 3.31 – IPCC Good Practice Guidance for LULUCF)

Tier 3: Tier 3 uses national data on managed forest lands from different sources, notably national forest inventories, registers of land-use and land-use changes, or remote sensing. These data should give a full accounting of all land use transitions to forest land and disaggregate along climate, soil and vegetation types.

The PNG exercise on forest area change
fulfil Tier 3 requirements for Activity Data (land area change)

Slide 3

Forest permanent plot distribution according to PNG main forest types

Slide 4
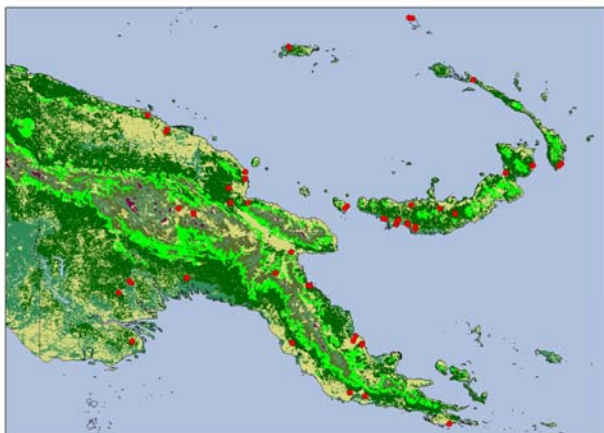
Example of raw data from permanent plots

Plotno: WATUT03	Location: GUMI		Province: Morobe Province				Date of measurement: 07-08-95		

Quadrat	Tree No.	Species name	POM	Diam	Basal Area	Stem Form	Crown Diam	Crown Posn	Crown Qual	Height Merch	Height CrBase	Height Total	BA Count
00	01	*Nothofagus*	1.3	17.2	0.023	C	5.6	5	5	1.6	2.7	3.8	5
00	02	*Phyllocladus hypophyllus*	1.3	11.4	0.010	C	0.3	5	5	1.2	1.2	2.1	4
00	03	*Cryptocarya*	1.3	19.5	0.030	B	0.4	4	5	10.5	16.1	19.3	3
00	04	*Opocunonia*	1.3	35.5	0.099	C	0.6	5	5	16.6	21.6	27.9	4
00	05	*Lithocarpus*	1.3	25.2	0.050	B	0.8	4	5	15.0	18.4	26.1	5
02	01	*Schizomeria*	1.3	40.6	0.129	A	0.3	5	3	15.3	15.3	32.2	4
02	02	*Cryptocarya*	1.3	19.6	0.030	C	0.3	3	3	15.3	15.3	32.2	4
02	03	*Myristica*	1.5	33.1	0.086	A	0.3	4	4	15.3	15.3	29.8	7
02	04	*Calophyllum*	1.3	27.7	0.060	D	0.3	4	4	9.5	13.3	2.1	4
02	05	*Aporusa*	1.5	12.4	0.012	C	0.2	4	4	4.2	11.7	18.7	8

…

Example of summary data from permanent plots

Plotno: WATUT03	Location: GUMI		Province: Morobe Province							Date of measurement: 01-05-02	
Species Code	**Species name**	**Stems <10cm**	— Number of Stems and Basal Area per Diameter Class							**All DCLs**	**Volume (20cm+)**
			DCL 10	DCL 20	DCL 30	DCL 40	DCL 50	DCL 60	70cm +	Stems	BA	

Species Code	Species name	Stems <10cm	DCL 10	DCL 20	DCL 30	DCL 40	DCL 50	DCL 60	70cm +	Stems	BA	Volume (20cm+)
HOM	*Homalium*		57 1.210	16 0.589						73	1.799	3.872
CRY	*Cryptocarya*	17	34 0.596	13 0.606	3 0.240					67	1.442	4.501
ARA	*Araucaria*	3	54 1.029	6 0.213						63	1.242	1.022
PLS LED	*Polyscias ledermanii*	3	35 0.739	10 0.381						48	1.120	1.868
ELA	*Elaeocarpus*		26 0.388	6 0.256		2 0.256	1 0.219			35	1.119	4.613
CAS ACU	*Castanopsis acuminat*	1	8 0.172	2 0.103	2 0.207	8 1.250	4 0.826	4 1.239		29	3.833	26.652
MAC	*Macaranga*	2	14 0.326	8 0.312						24	0.638	1.532
SYZ	*Syzygium*	1	11 0.202	4 0.174	2 0.194	3 0.427	1 0.245			22	1.242	6.780
CAL	*Calophyllum*	5	2 0.030	4 0.221	4 0.352		1 0.267			16	0.870	5.347
GAR LAT	*Garcinia latissima*	6	3 0.043	5 0.194	2 0.188					16	0.425	2.084
...												

Data from permanent plot a more than sufficient to asses specific country values of above ground carbon stock for the main forest type

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Deforestation (like art. 3.3)
3.3.2.1 Change in Carbon Stocks in Living Biomass
(Pg 3.85 – IPCC GPG LULUCF)

EQUATION 3.3.8
ANNUAL CHANGE IN CARBON STOCKS IN LIVING BIOMASS
IN LAND CONVERTED TO CROPLAND

$$\Delta C_{LC_{LB}} = A_{Conversion} \bullet (L_{Conversion} + \Delta C_{Growth})$$

$$L_{Conversion} = C_{After} - C_{Before}$$

Where:
ΔC_{Growth} is set equal to 0,
and C_{After} is set equal to 0

The PNG case study demonstrates feasibility in calculating Change in Carbon Stocks in Living Biomass under deforestation, at a mix tier between 1 and 2 with a conservative approach (no claim for any vegetation regrowth – carbon sink)

Assuming that forest degradation can be defined as the conversion between two different forest categories

Forest Degradation
3.2.1.1 Change in Carbon Stocks in Living Biomass
(Pg 3.24 – IPCC GPG LULUCF)

EQUATION 3.2.3
ANNUAL CHANGE IN CARBON STOCKS IN LIVING BIOMASS
IN FOREST LAND REMAINING FOREST LAND (STOCK CHANGE METHOD)

$$\Delta C_{FF_{LB}} = (C_{t_2} - C_{t_1}) / (t_2 - t_1)$$

Where:
C_{t_1} is average carbon amount in the *not-exploited* forest,
C_{t_2} is average carbon amount in the *exploited* forest,
and $C_{t_1} > C_{t_2}$ where C_{t_1} and C_{t_2} are constant in time

In the PNG case study, demonstrates feasibility in applying the stock change method (tier 2) even if a further extension of the present set of permanent sampling points (132 points) is recommended.

Future action

The Environmental Federal Agency of Germany has funded a research project to carry out test studies on potential emission reductions from deforestation in developing countries

In the context of this project MPI in collaboration with the Forest Research Institute of PNG will try to quantify these potential emissions reductions for PNG