

FOR1: MDG 8: ENSURE ENVIRONMENTAL SUSTAINABILITY
Protected Forest Area as a percentage of Total Land Area**H****Target 9: Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources****Concept and Definition**

A *protected area* is defined as an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal and effective means. (Legal or effective means refer to the objectives of the Act under which an area is designated and implies security of tenure, generally revoked only by a state or national parliamentary process; or areas covered by a legally adopted plan of management.)

A protected area includes six categories, which are:

- Category I(a): Strict Nature Reserve
- Category I(b): Wilderness Area
- Category II: National Park
- Category III: National Monument
- Category IV: Habitat/Species Management Area
- Category V: Protected Landscape/Seascape
- Category VI: Managed Resource Protected Area

(Please refer to http://www.iucn.org/about/union/commissions/wcpa/wcpa_overview/ [last accessed: June 19th 2009].)

Forest is land spanning more than 0.5 hectares with trees higher than 5 metres and a canopy cover of more than 10 per cent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use but does include areas under reforestation that have not yet reached, but are expected to reach, a canopy cover of 10 per cent and a tree height of 5 metres. It also includes temporarily unstocked areas, resulting from human intervention or natural causes, which are expected to regenerate.

Protected forest area as a percentage of total land area is the area of protected forest as a share of total land area, where land area is the total country area excluding the area of inland water bodies (major rivers, lakes and water reservoirs).

Method of Computation

The measurement methods for forest area can be contained in national forest inventories or assessments, and the estimate is obtained by sampling ground surveys, cadastral surveys, remote sensing, or a combination of these. The forest area is calculated

as the sum of plantations and natural forest areas with tree crown cover equal to and more than 10 percent.

Since forest resources assessments are expensive and thus rarely undertaken annually, the forest area for a given reference years is estimated through inter- or extrapolation. The areas of forest and primary forest are then presented as the percentages of the land area.

$$\text{Protected Forest Area as a Percentage of Total Land Area} = \frac{\text{Protected Forest Area}}{\text{Total Land Area}} \times 100$$

Indicator Relevance

Forests serve multiple ecological, socioeconomic, and cultural roles in many countries. They are among the most diverse and widespread ecosystems of the world. Forests provide many significant resources and functions including: wood products, recreational opportunities, habitat for wildlife, water and soil conservation, and a filter for pollutants. They support employment, traditional uses, and biodiversity. There is general concern, however, over the human impact on forest health and the natural processes of forest growth and regeneration. Protected forest area as a percentage of total land area measures the societal response to protect biodiversity and landscapes through the creation of representative reserves of various forest ecosystems.

This indicator represents only one element of a sound forest conservation policy aimed at sustainable development and measures the part of the total forest area which has been delineated for protection purposes. It includes areas established to protect wildlife, special ecosystems, and soil and water resources. The higher the protected forest area as a percentage of total land area, the better the performance of the country in protecting and conserving its forest resources.

It should be noted, however, that the indicator is limited to forest ecosystems only. It does not provide information on the ecological value of the protected areas. A country can set aside large areas of forests with a low importance for biological diversity and continue to unsustainably harvest high valuable non-protected forests. The indicator says nothing about the effectiveness of the protection; either from the viewpoint of ecological representivity or management and law enforcement. Ideally, the protected forest area should cover representative examples of all existing forest ecosystems, with the area appropriate to their rarity or uniqueness. (*Please refer to the United Nations Methodological Sheets at http://esl.jrc.it/envind/un_meths/UN_ME109.htm.*)

Data Assessment

Internationally recommended definition was provided for this indicator by reporting countries none of which indicated that they had deviated from the international definition of a forest. This indicator is conceptually harmonized.

The comparability of the data is, nonetheless, affected since for 2003 and 2004, Suriname reported data that represented protected and proposed protected forest areas instead of data of protected forest area only.

Data Sources

Data for the indicator was collected from Member States and Associate Members. Please see **Appendix 2.9.1** for details, along with notes to the table.

Evaluation

Table 9.1 presents the *Total Forest Area*, *Protected Forest Area*, *Protected Forest Area as a per cent of Total Forest Area* and the *Total Forest as a per cent of total land area* for reporting CARICOM Member States. *Total forest area* was found to be greater in the non-island Member States Guyana (168,789 squared kilometres), Suriname (148,000 squared kilometres) and Belize (15,867 squared kilometres). Among island States, Jamaica reported the largest *forest area* which declined by 35 per cent from 5,316 squared kilometres in 1980 to 3,439 squared kilometres in 1989 and further to 3,402 squared kilometres in 1996. Trinidad and Tobago reported an increase in *total forest area* from 2,300 squared kilometres in 1995 to 2,637 squared kilometres for the period 1996-2004. In the remaining Member States, St. Vincent and the Grenadines reported declines in the *total forest area* from 185 squared kilometres in 1990 to 121 squared kilometres in 2004 representing a decline of 34.6 per cent, Saint Lucia reported 75 squared kilometres of total forest area in 2002 and Dominica reported 60 squared kilometres of forest area for the period 1980 to 2004.

Eight countries reported data for *protected forest area* out of nine countries submitting data for this indicator. Overall St. Vincent and the Grenadines had the highest proportion of its *forest area protected* (130 squared kilometres) with its percentage ranging between 70 per cent and 100 per cent. This also represented 38.2 per cent of *protected forest area as a per cent of land area*. Trinidad and Tobago followed with an increase from 1,504 squared kilometres or 65.4 per cent of *total forest area* to 1,961 squared kilometres or 75 per cent of *total forest area*. The *protected forest area as a per cent of land area* in this Member State increased from 29.3 per cent in 1995 to 38.6 per cent for the period 1996 to 2004. Saint Lucia reported 33 squared kilometres or 44.3 per cent of its *total forest area* as protected which also represents 0.1 per cent of its total land area in 2002. 1,193 squared kilometres or 35.1 per cent of Jamaica's *total forest area* was protected. This also represents 10.9 per cent of Jamaica's total land area. Belize reported *protected forest area as a per cent of total forest area* at 25.7 per cent in 1998 and *protected forest area as a per cent of total land area* fluctuating from 18.8 per cent in 1995 to 17.7 per cent for the period 1996 to 1998 increasing slightly to 17.9 per cent in 2001 then further by 6.7 percent to 19.1 per cent in 2001 and finally decreasing to 16.9 per cent in 2004. Dominica reported its *protected forested area as a per cent of total land area* at 7.95 per cent during the period 1980 to 2004.

Suriname's *protected forest area* remained fixed throughout the period 1990-2004 (20,850 squared kilometres or 14 per cent of *total forest area*). 2003 and 2004 included 1,815 squared kilometres of proposed *protected forest area* which increased *protected forest area as a per cent of total forest area* by 1 percent. Suriname's *protected forest area as a per cent of total land area* was 13 per cent from 1990 to 2002 and 14 per cent in 2003 and 2004. Of the total 68,789 squared kilometres forest area of Guyana, 2.2 per cent (3,662 squared kilometres) has protected forest cover.

Table 9.1 Protected Forest Area as a Percentage of Total Land Area: 1980, 1989 - 1990, 1995, 1998 - 2004

Country	Year	Total forest area km ²	Protected forest area km ²	Protected forest area as a per cent of Total forest area	Protected forest area as a per cent of Total land area
BZ	1995	...	4,319	...	18.80
	1996/1998	15,867	4,074	25.70	17.70
	2000	...	4,111	...	17.90
	2001	...	4,378	...	19.10
	2004	...	3,885	...	16.90
	DM	1980	60	...	...	7.95
	1990	60	...	...	7.95
	1995	60	...	...	7.95
	1998	60	...	...	7.95
	1999	60	...	...	7.95
	2000	60	...	...	7.95
	2001	60	...	...	7.95
	2002	60	...	...	7.95
	2003	60	...	...	7.95
	2004	60	...	...	7.95
GY	2001	168,789	3,662	2.17	1.70
JM	1980	5,316	...	...	...
	1989	3,439	...	...	...
	1998	3,402	1,193	35.07	10.90
LC	2002	75	33	44.26	0.05
VC	1990	185	130	70.36	38.22
	1995	155	130	83.91	38.22
	1998	143	130	91.47	38.22
	2000	138	130	94.29	38.22
	2001	134	130	97.30	38.22
	2002	130	130	100.51	38.22
	2003	126	130	103.94	38.22
	2004	121	130	107.61	38.22
SR	1990	148,000	20,850	14.00	13.00
	1995	148,000	20,850	14.00	13.00
	1998	148,000	20,850	14.00	13.00
	1999	148,000	20,850	14.00	13.00
	2000	148,000	20,850	14.00	13.00
	2001	148,000	20,850	14.00	13.00
	2002	148,000	20,850	14.00	13.00
	2003	148,000	22,665a	15.00	14.00
	2004	148,000	22,665a	15.00	14.00
TT	1995	2,300	1,504	65.39	29.33
	1998	2,637	1,981	75.12	38.63
	1999	2,637	1,981	75.12	38.63
	2000	2,637	1,981	75.12	38.63
	2001	2,637	1,981	75.12	38.63
	2002	2,637	1,981	75.12	38.63
	2003	2,637	1,981	75.12	38.63
	2004	2,637	1,981	75.12	38.63

Appendix 1.9

Conversion Table

Metric	to	Imperial
2 hectares (ha)		5 acres
1 square kilometre (squared kilometres)		250 acres
8 square kilometres (squared kilometres)		3 square miles (mi ²)

Appendix 2.9

2.9.1 (a): Sources of Data for Table 9.1 - Protected Forest Area as a Percentage of Total Land Area: 1980, 1989 – 1990, 1995, 1998 - 2004

Country	Data Source
Belize	Environmental Statistics Unit, Ministry of Natural Resources
Dominica	Forestry Parks and Wildlife Division
Guyana	Guyana Forestry Commission
Jamaica	Forestry Department
Saint Lucia	Forestry Department, Ministry of Agriculture, Forestry and Fisheries
St. Vincent and the Grenadines	Forestry Department
Suriname	Institute for Forest Management and Control
Trinidad and Tobago	Forestry Division

2.9.1 (b): Notes for Table 9.1 - Protected Forest Area as a Percentage of Total Land Area: 1980, 1989 – 1990, 1995, 1998 - 2004

Country	Notes
Belize	*: 1998 data refers to a study conducted in 1996/1998
Guyana	Protected Areas: Forest by Environmental Protection Agency 2001. Total forest area refers to forest cover.
St. Vincent and the Grenadines	The data relates only to mainland St. Vincent and do not include private forest below 1000 ft. a.s.l (air speed indicator). It is also based on linear regression around 1990 figures
Suriname	a: protected areas and proposed protected areas.