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# Data Sources and Methods: Protected Areas, International Comparison Indicator

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# Introduction

For its comparison of the proportion and total terrestrial area afforded protection for conservation purposes by various countries, CESI uses the World Database on Protected Areas (WDPA), which is a joint project of the United Nations Environment Programme (UNEP) and the International Union for Conservation of Nature (IUCN).

The WDPA uses the IUCN definition of a protected area:

> "A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values".
>
> **Source**: Dudley, N. (Editor) (2008) Guidelines for Applying Protected Area Management Categories. Gland, Switzerland: IUCN. Available from: http://data.iucn.org/dbtw-wpd/edocs/PAPS-016.pdf.

An annual analysis is made by UNEP-WDPA to support reporting on progress towards the Millennium Development Goals and on the targets of the Convention on Biological Diversity. Statistics from selected countries included in that analysis were used here. The information below is drawn from on-line documentation of analysis done by the WDPA (Short summary of the methodology used for the 2011 MDG analysis, retrieved 23 November 2010 from http://www.wdpa.org/Statistics.aspx). Differences between WPDA data and Canadian data for the total area protected are due to differences in the year considered and in estimates of national terrestrial area, as well as differences in data processing and analysis.

# How the indicator was derived

This indicator is calculated by UNEP-WDPA using all the nationally designated protected areas recorded in the World Database on Protected Areas (WDPA) whose location and extent is known. The WDPA is held within a Geographic Information System (GIS) that stores information about protected areas such as their name, type and date of designation, documented area, geographic location (point) and/or boundary (polygon).

A GIS analysis is used to calculate terrestrial and marine protection. For this a global protected area layer is created by combining the polygons and points recorded in the WDPA. Circular buffers are created around points based on the known extent of protected areas for which no polygon is available. Annual protected area layers are created by dissolving the global protected area layer by the known year of establishment of protected areas recorded in the WDPA. The annual protected area layers are overlaid with country/territory boundaries, coastlines and buffered coastlines (delineating the territorial waters) to obtain the absolute coverage (in square kilometers) of protected areas by country/territory per year from 1990 to present. The total terrestrial protected area of a country or territory is divided by the total area of its land (including inland waters) to obtain the relative coverage (percentage) of protected area.

# Data sources

IUCN and UNEP. 2010. The World Database on Protected Areas (WDPA). UNEP-WCMC. Cambridge, UK. Available from http://protectedplanet.net/

Millenium Development Goals analysis and summary statistics (January 2010 Annual Release) Available from http://www.wdpa.org/Statistics.aspx

Quality control criteria are applied to ensure consistency and comparability of the data in the WDPA. New data are validated at the UNEP World Conservation Monitoring Centre (WCMC) through a number of tools and translated into the standard data structure of the WDPA. Discrepancies between the data in the WDPA and new data are resolved in communication with data providers. Processed data is fully integrated into the published WDPA.

# Caveats and limitations

The extent to which the land areas including inland waters of a country/territory are protected is a useful indicator of Government's will to protect biodiversity. However, it is neither an indication of how well managed the terrestrial protected areas are, nor confirmation that protection measures are effectively enforced. Further, the indicator does not provide information on non-designated or internationally designated protected areas that may also be important for conserving biodiversity.

There are known data and knowledge gaps for some countries/regions due to difficulties in reporting national protected area data to the WDPA and/or determining whether a site conforms to the IUCN definition of a protected area.

Data availability, both in terms of quantity and quality, is improving but not evenly across the globe. Data on terrestrial protected area coverage are available for over 220 countries/territories.

### Sources of discrepancies between global and national figures

UNEP-WCMC aggregates the global and regional figures for this indicator from the national figures calculated through GIS analysis. The global, regional and national figures provided by UNEP-WCMC are therefore consistent. Gaps and/or time lags in reporting national protected area data to the WDPA can however result in discrepancies between the national figures provided by UNEP-WCMC and national figures available from national agencies. The WDPA 2010 analysis uses an older version of CARTS, and does not consider the marine portions of protected areas that are primarily terrestrial.

# Spatial coverage

Global.

# Temporal coverage

The WDPA is published annually. The data in the WDPA is freely available for non-commercial use from www.protectedplanet.net. The MDG statistics are compiled in the beginning of each year based on the most current monthly version of the WDPA then available and submitted to the UN Statistics Division. The time lag between reception of new data and production of the MDG statistics is up to one year. UNEP-WCMC makes available a summary of its MDG statistics at: http://www.wdpa.org/Statistics.aspx

# Data quality - completeness

Protected areas with unknown location and/or extent are excluded from the GIS analysis and statistics. Protected areas with unknown year of establishment are included in the GIS analysis and statistics for every year from 1990 to present. This avoids counting spatial overlaps between dated and undated protected areas. Where no new data is received for a country/territory during a year, protected area coverage is assumed to be equal to the previous year.

# Data quality - timeliness

The January 2010 version of the WDPA was used for a spatial time series analysis of protected area coverage from 1990 to 2009, for the 2010 Millennium Development Goals (MDG) Report.

# For more information

- World Database on Protected Areas hosted on ProtectedPlanet.net (http://protectedplanet.net/)

- World Database on Protected Areas Statistics analysis (http://www.wdpa.org/Statistics.aspx)