Report on definitions adopted by countries for MDG 7

Introduction

This report discusses issues in the definitions and reporting of indicators related to Millennium Development Goal 7, which aim at ensure environmental sustainability of countries’ economy. Countries monitor a number of indicators to track the progress towards: the integration of the principle of sustainable development intro country policies and reverse the loss of environmental resources, the reduction of biodiversity loss, the reduction of the proportion of people without sustainable access to safe drinking water and basic sanitation, the improvement in living conditions of slum dwellers. Indicators for this progress include the proportion of land covered by forest and of protected natural resources, the amount of CO2 and of ozone depleting substances produced, the proportion of population that has access to safe drinking water and improved sanitation facilities, the proportion of population living in slums. Providing adequate data definitions and methods is a necessity to measure the progress countries make towards their goals and to enable international comparison.

To collect and present with confidence environmental statistics can be a challenge, in particular in trying to assure comparability among countries. Further efforts are needed in order to reach a comprehensive monitoring of the indicators for MDG 7 in ECE area. Among the twenty eight countries revised for this report only four countries provided data for more than five indicators out of the official ten. Among this four the more complete coverage is provided by Armenia, which reports data for seven indicators. In particular, for three official indicators\(^1\) no data were provided by any country. Other two indicators\(^2\) are instead severely underreported. This can be due both to a scarce applicability of the indicator to the specific country or to a difficult in collecting and presenting data on the topic.

For what concern data presentation, some improvements are needed. The vast majority of current country reports do not provide adequate notes on sources of data, data collection or method, and on computation of indicators. Despite the non-technical audiences of the report, basic definitions included (even in footnotes) would enhance the quality of the content. Moreover, the indication of the definition adopted in the calculation is essential in order to ensure cross country comparison and consistency of data report over time.

There are several basic steps to improve the quality of data reporting. Definitions adopted, even if corresponding to the official one, should be reported (whether in the text or as an appendix). Sources of data should be always provided, whether these are specific publications or simply the country’s statistical office. This practice allows attaching a simpler definition - aimed at the non-technical reader - ensuring at the same time the availability of more detailed explanations for who needs it. The insertion of time series data is useful to show progresses achievement, however, when

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\(^1\) i4 - Proportion of fish stocks within safe biological limits; i5 - Proportion of total water resources used; i7 - Proportion of species threatened with extinction.

\(^2\) i3 - Consumption of ozone depleting substances; i10 - Proportion of urban population living in slums
data are presented via trend-lines in figures, it is helpful that these figures are accompanied by tables of numbers. Countries may choose to include caveats and discuss issues of data collection. Changes in methodology or data collection practices should be noted. Over all, reports should strive to include definitions, methods, and notes.

This report will present an overview of the indicators measured under target seven, and briefly note the specific information that should be provided to accompany country data points. A list of the main concepts considered in the official definitions, source of potential ambiguity in the data, is provided. It has to be noticed that the vast majority of the reviewed report did not report any definition of the listed concept. A final recap of the availability of data by Goal and Indicator is provided in the Appendix.

**Targets for MDG 7**

The monitoring of Millennium Development Goal 7 is organized around 4 main targets:

- **Target 7.A:** Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources;
- **Target 7.B:** Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss;
- **Target 7.C:** Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation;
- **Target 7.D:** By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers.

Each of the following indicators helps in verifying the progress toward the achievement of one or even two of the listed targets.

**Indicator 1: Proportion of land area covered by forest**

This indicator provides a measure of the relative extent of forest in a country. It is used to assess the progress for Target 7.A.

The indicator is calculated by dividing the total area of forest by total land area and multiplying by 100. The relevant concepts in the definition of this indicator are:

- **Forest area:** which area has to be included depending on the type of vegetation and the destination use;
- **Land area:** which area has to be included (exclusion inland waters).

*Indicator 1* is one of the more reported, with 23 countries out of 28 that provide data for it. Definition, source, primary source, or detailed definitions are usually not reported in any report. Few countries (e.g. Romania MDG Report 2004) reported the area covered by forest in thousands hectares instead that expressed as a percentage of the total land. This way of reporting makes less
understandable which is the real incidence of the land on total country area complicating cross country comparison and assessing evolution over time.

**Indicator 2: CO2 emissions, total, per capita and per $1 GDP (PPP)**

This indicator monitors countries’ efforts to reduce CO2 emissions, which account for the largest share of greenhouse gases associated with global warming. It is used to assess the progress for Target 7.A.

This indicator is calculated by dividing an estimate of total carbon dioxide emissions by total population and by dividing total carbon dioxide emissions by GDP in terms of PPP. Some different definitions have been applied by countries in their reports:

- Thousands metric tons of CO2 per capita
- Metric tons of CO2 per capita
- Energy use (kg oil equivalent) per 1000 $ GDP (constant 2005 PPP):
  - Constant 2005 PPP GDP
  - Local currency
  - Constant 2000 PPP GDP
- Energy use per GDP (Moldova 2012)

The relevant concepts in the definition of this indicator are:

- **Total carbon dioxide (CO2) emissions**: They should include emissions from all national activities. Since they are often known with much less certainty, emissions from land-use changes and forest cover changes could not be included and “total” emission could be estimated as the sum of emissions from energy, industrial processes and waste. As shown by the different encountered definitions, some heterogeneity exists in the unit of measure in which emissions per capita are reported. Data has then to be analysed taking care that they are expressed in the same unit of measure.
- **Gross domestic product (GDP)**
- **Purchasing Power Parity (PPP)**: is the conversion factor by which the local GDP is converted in a comparable measure. As shown in the preceding list GDP has been expressed in some different way in the reports. The vast majority of countries have adopted the standard 2005 PPP. Belarus in the MDG Report of 2005 has expressed the GDP in local currency and two reports (Belarus 2010 and Kazakhstan 2010) have adopted the 2000 PPP.

The list of which sources of emissions are included or not is usually not reported in any report. One exception is constituted by the Macedonian Report of 2005 which includes in the text a brief explanation of which sources are taken into account as well as some hints on which are the main sector to be targeted by policies:

> In the Republic of Macedonia the main sources of CO2 emissions are: production of electricity, production of heat and transport. In equivalent CO2 emissions, the energy sector accounts for the highest share of 70.04 per cent (in 1994). Electricity consumption by households is rising both in absolute as well as in relative terms, and the rise is even higher
in the public and service sectors. Liquid fuels consumption is increasing, largely as a result of the growth in road traffic.

Another example of good practices adoption is the MDG Report of 2003 from Romania. They report a brief definition in the Appendix, in which a more detailed reference is provided for anybody who might be interested in:

*Carbon dioxide emissions per capita* = total quantity of all types of greenhouse gas emissions provided in the Kyoto Protocol (on the basis of the GWP - Global Warming Potential of the Intergovernmental Panel on Climate Change), divided by the total number of people.

**Indicator 3 - Consumption of ozone-depleting substances**

This indicator is used to monitor the reduction in the usage of Ozone Depleting Substances (ODS) that are controlled under the Montreal Protocol. These man-made substances have scientifically been shown to be solely responsible for ozone depletion. It is used to assess the progress for Target 7.A.

Consumption of ODS is calculated as the national production of ODS plus imports, minus exports, minus destroyed quantities, minus feedstock uses of a controlled substance.

Relevant concepts for the definition include:

- Ozone-depleting substances (ODS)
- Ozone depleting potential (ODP)
- National production and international trade statistics

Indicator 3 is widely under-reported, as only six countries provide data for it.

As for the others indicators, additional information on sources and method of computation of the data point are scarce. The calculation of the ODS consumption is quite technical and takes into consideration multiple factors, and it is then a good choice not to include it in this kind of not-technical report. Nevertheless, sometimes problems could arise with the accuracy of the available consumption data. Sources of inaccuracies include errors of omission, under-reporting, over-reporting, and mis-categorisation where one substance is incorrectly reported as a different substance. Availability of data for all substances varies across countries and years. In some cases, the consumption values for "All Ozone-Depleting Substances" refer only to those substances for which data were available in that year. A brief list of which substances has been taken into consideration in the calculation or a clear reference indication should then be always included.

One good example of how to provide the list of the considered substances is given by Lithuania MDG Assessment 2002. As can be seen in Figure 1, a table containing disaggregated data for substance is provided. This clarifies the calculation procedure and allows policy makers to understand the relative incidence of each substance and to identify which are the sectors in which efforts for reduction has to be concentrated.
Figure 1 – Consumption of Substances Depleting the Ozone Layer (Lithuania MDG Assessment 2002)

<table>
<thead>
<tr>
<th>Table 5</th>
<th>Consumption of Substances Depleting the Ozone Layer (ODS): 1995-2001</th>
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</thead>
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<td>CFC (A)</td>
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<tr>
<td>Halons (All)</td>
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<td>Carbon Tetrachloride (BII)</td>
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<td>HFCF (CI)</td>
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<tr>
<td>MethylBromide (EI)</td>
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<tr>
<td>Total</td>
<td>421.6</td>
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</table>

Another example of good practice is in the Serbia MDG Report 2001-2004. Even if it does not report any detailed definition, it provides the extensive reference to the original Ministerial document from which data were taken.

**Indicator 4: Proportion of fish stocks within safe biological limits**

This indicator aims at monitor the proportion of fish stocks or species that are exploited within the level of maximum sustainable biological productivity. It is used to assess the progress for Target 7.A and Target 7.B.

The calculation of this indicator is based on the 21 statistical areas in which FAO has divided the world oceans.

As it is conceived for countries that have direct access to Oceans, no country from the ECE area report data for it.

**Indicator 5: Proportion of total water resources used**

The purpose of this indicator is to show the degree to which total renewable water resources are being exploited to meet the country’s water demand. It measures a country’s pressure on its water resources and therefore on the sustainability of its water use. It is used to assess the progress for Target 7.A and Target 7.B.

The proportion of total water resources used is the total volume of groundwater and surface water withdrawn from their sources for human use (in the agricultural, domestic/municipal and industrial sectors), expressed as a percentage of the total actual renewable water resources.

The relevant concepts in the definition of this indicator are:

- Total actual renewable water resources (TARWR)
- Internal renewable water resources
- Freshwater withdrawal
By now, no country has provided data for this indicator. Some countries provide alternative indicator regarding water resources consumption, for example Lithuania MDG Assessment of 2002 provides data for discharge of wastewater into surface waters.

**Indicator 6: Proportion of terrestrial and marine areas protected**

The establishment of protected areas is an important mechanism for achieving habitat conservation, this indicator serves as a means of measuring progress toward reducing biodiversity loss. It is used to assess the progress for Target 7.A and Target 7.B.

The proportion of terrestrial and marine areas protected is defined as the proportion of a country’s total terrestrial and marine area that is designated as a protected area.

The relevant concepts in the definition of this indicator are:

- *Terrestrial area*
- *Marine areas*
- *Protected areas*: the official definition adopted is the one provided by the International Union for Conservation of Nature (IUCN).

Data and knowledge gaps can arise due to difficulties in measuring the proportion of a protected area within the total terrestrial and/or marine environment, and in determining whether a site conforms to the IUCN definition of a protected area. As for the other indicators, ambiguity is shown in several reports on the applied definition of protected area.

One example of ambiguous reporting is contained in the MDG Report from Tajikistan of 2003.

*Figure 2 – Forest Coverage and Protected areas (Preserves, Reserves) (Tajikistan MDG Report of 2003)*

![Figure 2](image)

As shown in the Figure 2, data for “preserves” and “reserves” areas are provided. However no definition of the two terms is provided in the text, making impossible to understand which features distinguish them and if the official IUCN definition is followed in one of the two.
As for Indicator 1, in some cases (e.g. Croatia 2005, Georgia 2005) the protected area is not expressed as a percentage of the total surface but as an absolute area (sq. km.) raising the already noticed problems of comparability and communication effectiveness.

**Indicator 7 - Proportion of species threatened with extinction**

This indicator can be used to assess overall changes in the extinction risk of sets of species as a result of threats as habitat destruction and degradation, overexploitation, invasive alien species, human disturbance, pollution and climate change and the extent to which threats are being mitigated. It is used to assess the progress for Target 7.B.

The calculation of this indicator is based on the number of species in each category of extinction risk on the International Union for Conservation of Nature (IUCN) Red List.

As a matter of fact, no country from the ECE country provided data for this indicator. The reason for such underreporting might be found in the limitations listed by the official UNSD handbook for the monitoring of MDGs:

- **Inadequate, incomplete or inaccurate knowledge of a species’ status.** This uncertainty is minimized by assigning estimates of extinction risk to categories that are broad in magnitude and timing.
- **Delays in knowledge about a species becoming available for assessment.** Such delays apply to a small (and diminishing) proportion of status changes, and can be overcome in the IUCN RLI through back-casting.
- **Inconsistency between species assessments.** These can be minimized by the requirement to provide supporting documentation detailing the best available data, with justifications, sources, and estimates of uncertainty and data quality, which are checked and standardized by IUCN through Red List Authorities, a Red List Technical Working Group and an independent Standards and Petitions Sub-committee.
- **Species that are too poorly known for the Red List Criteria to be applied are assigned to the Data Deficient category, and excluded from the calculation of the IUCN RLI.** For birds, only 0.8 per cent of extant species are evaluated as Data Deficient, compared with 24 per cent of amphibians. If Data Deficient species differ in the rate at which their extinction risk is changing, the IUCN RLI may give a biased picture of the changing extinction risk of the overall set of species. The degree of uncertainty this introduces can be quantified once a significant proportion of Data Deficient species have been re-assigned to other Red List Categories and then reassessed.

**Indicator 8 - Proportion of population using an improved drinking water source**

This indicator measures the use of an improved drinking water source as a proxy for measuring access to safe drinking water. It is used to assess the progress for Target 7.C.
Indicator 8 is defined as the percentage of population using an improved drinking water source is the share of the population that uses any types of improved drinking water supplies.

The relevant definition for the calculation of this index is the one for the concept of improved drinking water source.

In order to classify drinking water service categories as “improved” or “not improved”, as required for the MDG indicator, data need to be collected by facility type, insufficient disaggregation of service categories is the most common problem for adequately assessing progress using this indicator.

The indicator should be monitored separately for urban and rural areas. Because of national differences in characteristics that distinguish urban from rural areas, a single definition does not apply to all countries. Geographical and socio-economic disaggregation is also possible.

Indicator 8 is one of the most reported. Several countries report more specific definition (centralized water supply or piped water) as considered more significant for their development level. As recommended, several countries report also data disaggregated by rural and urban population. Given the context of ECE countries, an higher level of specification is preferable in order to have more concrete indications on the progresses for this indicator. A good example of high detailed data provision is the Tajikistan report 2005, which gives data disaggregated by single source, as shown in the Figure 3.

Figure 3 – Improved Water Source by source type (Tajikistan MDG Report 2005)
**Indicator 9 - Proportion of population using an improved sanitation facility**

This indicator is used to assess improvement in sanitation and hygiene promotion. It is used to assess the progress for Target 7.C.

*Indicator 9 is defined as the percentage of population using an improved sanitation facility.*

The key concept in the calculation of this indicator is the one of improved sanitation facility. The standard definition includes: flush/pour-flush toilets or latrines connected to a sewer, septic tank or pit; ventilated improved pit latrines; pit latrines with a slab or platform of any material which covers the pit entirely, except for the drop hole; and composting toilets/latrines. Indicating the specific categories that have been included or excluded in the calculation has then to be considered as a good practice.

The indicator is usually computed for both urban and rural areas by dividing the number of people using improved sanitation facilities by the total urban or rural population and multiplying by 100.

Several countries use more specific definition to assess the improvement in improved sanitation. Ten countries report data for the *Percentage of the population connected to a central or improved sewage system*. Two countries adopt as definition the *Percentage of the population with access to a WC/Flush toilet*.

For what concern the disaggregation by rural and urban areas, only 10 countries this specific data.

**Indicator 10 - Proportion of urban population living in slums**

This indicator measures the proportion of urban dwellers living in deprived housing conditions. It is a key indicator measuring the adequacy of the basic human need for shelter. It is used to assess the progress for Target 7.C.

*Indicator 10 is defined as the proportion of urban population living in slums is the proportion of the urban population that live in households lacking one or more of the following basic services: improved water, improved sanitation, durable housing, sufficient living area or security of tenure.*

Data for this indicator has been provided only by Armenia.
## Appendix - Data availability by country

### Table 1: Reported data points by country and Indicator

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**Notes:** a: 1 reported data point; b: 2 or 3 reported data points; c: more than three reported data points