

Types of discrepancy in Millennium Development Goal indicator values and measures for statistical reconciliation

Overall framework and implementation
in selected thematic areas and indicators

Daniel Taccari
Pauline Stockins



UNITED NATIONS

ECLAC

STATISTICS

Types of discrepancy in Millennium Development Goal indicator values and measures for statistical reconciliation

Overall framework and implementation
in selected thematic areas and indicators

Daniel Taccari
Pauline Stockins



UNITED NATIONS

E C L A C

This document was prepared by Daniel Taccari, Statistics Officer at the ECLAC Statistics Division, and Pauline Stockins, Consultant in the same division, under the ECLAC/United Nations Development Account project “Strengthening national statistical and inter-institutional capacities for monitoring the Millennium Development Goals through interregional cooperation and knowledge-sharing (ROA-146/7)”.

The views expressed in this document, which has been reproduced without formal editing, are those of the authors and do not necessarily reflect the views of the Organization.

United Nations publication

ISSN 1680-8770

LC/L.3686

ORIGINAL: SPANISH

Copyright © United Nations, April 2014. All rights reserved

Printed at United Nations, Santiago, Chile

Member States and their governmental institutions may reproduce this work without prior authorization, but are requested to mention the source and inform the United Nations of such reproduction.

Contents

Abstract	5
Introduction	7
I. Background	9
II. Overall frame of reference for understanding Millennium Development Goal statistical reconciliation in the region	11
A. Statistical reconciliation	11
B. Statistical discrepancies	12
III. General measures for statistical reconciliation	15
IV. Analysis of discrepancies relating to Millennium Development Goal target 1.B: Achieve full and productive employment and decent work for all, including women and young people	17
A. Indicator 1.4: Growth rate of GDP per person employed	18
B. Indicator 1.5: Employment-to-population ratio.....	19
C. Indicator 1.6: Proportion of employed people living below US\$1 (PPP) per day.....	20
D. Indicator 1.7: Proportion of own-account and contributing family workers in total employment	21
V. Analysis of discrepancies relating to Millennium Development Goal target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	23
A. Indicator 2.1: Net enrolment ratio in primary education.....	24
B. Indicator 2.2: Proportion of pupils starting grade 1 who reach last grade of primary	25
C. Indicator 2.3: Literacy rate of 15-24 year-olds, women and men	26
VI. Analysis of discrepancies relating to Millennium Development Goal target 4.A: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate	27
A. Indicator 4.1: Under-five mortality rate	27
B. Indicator 4.3: Proportion of one year-old children immunized against measles	28

VII. Analysis of discrepancies relating to Millennium Development Goal target 5.A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	31
A. Indicator 5.1: Maternal mortality ratio	31
VIII. Analysis of discrepancies relating to Millennium Development Goal target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	35
A. Indicator 7.8: Proportion of population using an improved drinking water source	37
B. Indicator 7.9: Proportion of population using an improved sanitation facility	40
IX. Conclusions	43
Bibliography	45
Statistics Series: issues published	47
 Tables	
TABLE 1 WATER SOURCES	37
TABLE 2 INFORMATION SOURCES USED BY COUNTRIES TO CONSTRUCT INDICATOR 7.8	38
TABLE 3 IMPROVED WATER SOURCES INCLUDED BY COUNTRIES IN THEIR NATIONAL MILLENNIUM DEVELOPMENT GOAL REPORTS	39
TABLE 4 SANITATION FACILITIES	40
TABLE 5 SANITATION FACILITIES CONSIDERED BY COUNTRIES AS IMPROVED	41

Abstract

This document proposes a conceptual and methodological framework for analysing discrepancies between indicator values for monitoring Millennium Development Goals (MDG) used globally and those used by Latin American and Caribbean countries in their national MDG reports. It includes an implementation exercise on a small set of indicators for specific MDG targets (employment, education, child mortality, maternal mortality and water and sanitation). Both the proposed methodology and the analysis made after comparing these values were presented for discussion at the fifth annual seminar on advances and challenges in statistical reconciliation for monitoring progress towards the Millennium Development Goals in Latin America, held in Buenos Aires (Argentina) on 5-6 November 2009, and at the sixth annual seminar on Millennium Development Goal indicators in Latin America and the Caribbean, in Mexico City, on 1-2 December 2011.

Introduction

The ECLAC Statistics Division promotes and coordinates the Millennium Development Goal (MDG) Statistical Programme in the region (<http://www.eclac.cl/mdg/default.asp?idioma=IN>), which has prioritized actions to increase the availability of reliable, good quality statistical information and implementation of the Regional MDG Conciliation Strategy, both of which are important for monitoring MDGs in Latin America and the Caribbean. Since 2005 the Statistics Division has been working with countries in the region in the areas of methodology and inter-agency cooperation to promote the production and dissemination of the statistical information and metadata needed to draw up national MDG reports with conclusions based on robust and increasingly comparable statistics and indicators.

The MDG Statistical Programme therefore focuses on the following areas.

- Adapting MDGs and their indicators to the regional context by proposing complementary indicators for regional analysis in different areas.
- Studies to identify gaps and discrepancies in MDG indicator values between national and international sources, and their causes.
- Building the national statistical and methodological capabilities of countries in the region for producing, disseminating and using MDG indicators in accordance with international metadata and regional benchmarks.

This has been accompanied by a work dynamic to promote inter-agency coordination and in-depth study of statistical aspects of the selected indicators, culminating in a Regional MDG Agenda for Statistical Reconciliation.

The aim of the Regional MDG Agenda for Statistical Reconciliation in monitoring MDGs (see Quiroga, Stockins and Azócar, 2009) is to provide the region with: common methodological guidelines for producing MDG statistics; institutional coordination forums at various levels; and building of technical statistical capacity for properly tracking and monitoring progress on MDGs. It sets out to establish a strategy common to country institutions and specialized agencies for enhancing available information and so addressing the following elements that help to achieve the objective.

- Creation and strengthening of forums for dialogue among national institutional bodies and between them and United Nations agencies working in the region.
- Creation and strengthening of national inter-agency committees.
- Identification of focal points in countries and agencies.
- Development and dissemination of a best practices catalogue or manual for producing statistics and for tracking and monitoring progress on MDGs.
- Definition of common methodologies to address the various MDG thematic areas.
- Creation of common metadata access and dissemination mechanisms.
- Building technical capacity, particularly for producing statistical information.

To ensure that any regional statistical reconciliation strategy in Latin America and the Caribbean is truly effective, ECLAC believes that there are three elements without which none of these efforts would come to fruition: political will; available financial and technical resources; and recognition of the statistical skills of specialized statistical agencies and their potential contribution.

I. Background

The Regional MDG Agenda for Statistical Reconciliation promotes a statistical reconciliation strategy intended to resolve statistical discrepancies in MDG indicator values between national and international sources and gradually fill existing data gaps.

ECLAC has set itself the key task of helping countries to remedy gaps and discrepancies in their MDG data. It started by making a diagnosis to compare the statistical information reported in national MDG reports with that published on the official United Nations site for the MDG indicators. As attested by ECLAC studies on the subject (Cecchini and Azócar, 2007; Quiroga, Stockins and Azócar, 2009), the statistics reported by countries in their national MDG reports do not usually tally with those published by international agencies, in particular with the statistical information in the United Nations MDG Indicators database.

The conclusion drawn from the first stage of the diagnosis was that the information reported by countries tallied with that published by international agencies in only 10% of cases (data series). More worryingly still, there were gaps of around 50% in data provided in national reports. In a second stage, the diagnosis was deepened to cover thematic areas and ascertain the causes of such discrepancies.

This work has led to preliminary guidelines for defining lines of action to improve and reconcile the data used. Based on the findings, four main areas of action were identified:

- inter-agency coordination, both within countries, as well as between international agencies and countries and among international agencies;
- use of common concepts and methodologies;
- metadata dissemination;
- statistical development and statistical standard-setting on emerging issues.

The work strategy calls for the development of a set of actions differentiated according to the thematic area (or even MDG indicator) involved, in line with the stakeholders involved in producing and using these indicators at global, regional and national levels. This focus on specialization stems from the specific causes of the discrepancies between the various indicators and from the widely varying degrees of statistical development in each MDG thematic area.

Discrepancies can be found for any indicator, attributable to the use of different methodologies (such as vital statistics and poverty statistics), differences in statistical standards and institutional leadership (emerging issues such as the environment), or poor inter-agency coordination (issues requiring the participation of several information providers in order to generate consistent indicators). To build the skills needed to meet these challenges, official statisticians must work in coordination with experts in each MDG field, with statisticians and experts working on their own particular actions in each field. Thus the aim is to coordinate a set of actions led by a variety of stakeholders with different but complementary responsibilities.

An approach by specialist thematic area also facilitates exchanges and dialogue in each MDG field, so building the necessary synergies to enable countries and specialized agencies responsible for the indicators at international level to design mechanisms to meet the challenges and seek solutions commensurate with their human and financial resources.

This requires findings in each of these specialist areas of work to be disseminated to a wider audience than traditional partners, including those responsible for national reporting.¹

¹ This has led to the presentation of results on: environmental indicators (Millennium Development Goal 7) at the workshop on building environmental indicators (ILAC/ODM7) in Latin American countries, held by ECLAC in September 2009; health indicators (Millennium Development Goals 4 and 5) at the regional workshop on practices to improve the quality of mortality data and harmonization of indicators for Goals 4 and 5: two discussion forums in April 2010; and information and communication technology indicators (Millennium Development Goal 8) at the sixth regional workshop on measuring the information society in September 2010.

II. Overall frame of reference for understanding Millennium Development Goal statistical reconciliation in the region

The need to identify lines of action for building MDG statistical reconciliation in the region requires the terms statistical reconciliation and statistical discrepancy to be defined.

A. Statistical reconciliation

Statistical reconciliation refers to a process of institutional coordination where the data sources and methodologies used by national statistical offices, sector statistical units and the lead international agency result in the production of MDG series and indicators with increasingly consistent points of observation and values over time, where the differences are clearly explained and described in metadata.

Statistical reconciliation is not the same as statistical convergence. Statistical convergence occurs when the indicator values calculated by countries and international agencies dovetail or are identical. Statistical reconciliation does not necessarily result in identical values, as it recognizes that countries may produce indicator values to meet specific requirements, whereas global values are produced to meet other requirements and timetables. For example, national statistical outputs are determined by countries' own particular resources, priorities, national names for variables, measurement and collection mechanisms and competent government agencies. International agencies produce statistics in accordance with their own requirements and resources and with globally discussed and agreed definitions, to allow each international agency to establish minimum acceptable levels of comparability and coverage of countries in accordance with the geographic area under analysis at each level.

Statistical reconciliation accepts the coexistence of relatively divergent points of observation for MDG indicators and their corresponding metadata, provided that the origin and magnitude of such discrepancies are systematized and disseminated. Statistical reconciliation is always possible in cases where true discrepancies originate from a set of factors that are unlikely to change substantively but convergence to the same value at the point of observation is impossible in such cases.

Thus statistical reconciliation provides a shared area of action enabling country institutions and international agencies to explain and describe discrepancies fully and share methodologies, definitions, statistical closing dates and dates for updating their databases, as well as the process for producing each indicator in comprehensive and accessible metadata records.

B. Statistical discrepancies

Evidence of discrepancies uncovered when analysing the data used in national, regional and international MDG reports has led to inter-agency work culminating in a number of substantive reconciliation actions.

A **statistical discrepancy** occurs when the reports produced by countries and regional and/or international agencies cite different values for the same indicator and same point of observation in a given geographic area.

Such discrepancies may stem from missing information or the fact that different values coexist for the same indicator, making it a complex and multi-causal phenomenon attributable to various factors, including the differing names, methods and sources used by individual countries, their relative level of statistical development, degree of inter-agency coordination, specific cultural and historical dynamic and the coexistence of legitimate national policy priorities that conflict (or concur) with the need to monitor progress on the international commitments undertaken by Heads of State at the Millennium Summit.

To implement reconciliation it is therefore imperative to differentiate between the various discrepancies by distinguishing between those that are justified and cannot be changed because they serve different interests (false statistical discrepancies) and those that can be changed because the causes have been identified and it makes sense to work on them to achieve consistency in the near future (true statistical discrepancies).

True statistical discrepancies

True statistical discrepancies are those that warrant a revision of the statistical processes relating to a particular indicator and the actors involved in constructing it, in order to plan actions for standardizing the values used in the various international, regional and national MDG reports by modifying, improving and ensuring the uniqueness of statistical and thematic criteria specific to the component to be measured.

True statistical discrepancies usually occur in the values observed for the same indicator when the indicator is reported by different information producers attempting to measure the same phenomenon, without agreeing on common methodologies or sources, or when several institutions are involved in developing the indicator without the necessary organizations to agree on common and shared procedures.

The main characteristic of a true statistical discrepancy is that the indicator is named, defined and calculated by the different information producers in a very similar way, meaning that differences in the value are more the result of discrepancies in: the exact type of variable comprising the indicator; the methodology for calculating it; or the unit of measurement used to express it.

Differences in methodology lead to differing operations and ways of processing the variables needed to obtain the indicator value and to differing mathematical formulae used for calculating, adjusting, imputing and estimating the indicator.

Where there are true statistical discrepancies, a necessary and fundamental prerequisite for starting the process of statistical reconciliation is inter-agency coordination among all the stakeholders involved at any level where comparable information is produced, as well as robust statistical development accompanied by the relevant documentation to facilitate the use of common methodologies, definitions and sources.

True statistical discrepancies tend to be more a feature of fast-evolving, emerging issues and of countries with less developed statistical capabilities, stemming from inadequate legislation or weak

governing bodies for the issue in question, insufficient inter-agency coordination, heterogeneous statistical development within the agencies involved in the various thematic areas, unrecognized technical leadership by institutions, and lack of shared metadata.

False statistical discrepancies

False statistical discrepancies are those for which no modification of the statistical processes relating to a particular indicator is required once the causes of discrepancies have been identified and documented, confirming that the observed values refer to different targets, or obey measurement procedures specific to the particular level of analysis, with most false discrepancies stemming from the use of different statistical indicators involving variables specific to the context for which they were constructed.

In this case, discrepancies in the value of an indicator occur as a result of differing targets set at local and international levels, differing measures used to assess the phenomenon, and internal structures specific to the particular context (international versus national).

In most cases it is acknowledged that different indicators are used for analysing progress in achieving a particular target. This tends to be more common in thematic areas with higher and more long-standing statistical development, as well as in countries with a long tradition of and development in millennium issues and statistical information.

Many countries with extensive capabilities and information in a particular area tend to present measures that are more conducive to assessing the specific MDG goal than official indicators, which can lead them to propose innovative indicators that differ from official ones. This may arise when official indicators are proposed using existing mechanisms and information at international level in the interests of cost-cutting, which can lead to selecting indicators that are the best under the circumstances but not necessarily from the perspective of relevance and appropriateness.

In cases such as this, it is important to avoid assigning the same name to different indicators and to use the two types of indicator (official and alternative) with the supporting documentation needed to understand them.

False statistical discrepancies may also arise when different indicator systems exist at international level, which, in the absence of channels for inter-agency cooperation between the lead agencies for internationally comparable statistics, may propose and promote the use of indicators designated by the same name as traditional indicators, which are often official indicators in existing policy-making and institutional bodies but are not comparable in substance and procedures.

Where there are false discrepancies, correct representation of the indicator and the use of metadata are essential to explain the differences, especially when pre-defined, regionally or internationally agreed statistical standards already exist, based on which the various data-producing agencies are required to build reconciled statistics.

III. General measures for statistical reconciliation

The prerequisites for remedying both true and false statistical discrepancies are inter-agency coordination, statistical rigour and documentation of the processes involved, in order to facilitate the description and understanding of observable differences and the design of a plan of action for conducting the reconciliation process.

As mentioned earlier, the actions to be undertaken depend on the level of statistical development in the above-mentioned areas of work, which differ from one MDG to another, or even within MDGs, according to the particular area or subject. To be able to understand specific situations it is therefore imperative to further the analysis by indicator and by country.

Below are some preliminary suggestions for work on regional statistical reconciliation in the areas of employment, education, child mortality, maternal mortality and water and sanitation, using the proposed typology for analysing observed discrepancies. This was based on information available internationally up to the year 2011/2012, mainly in the United Nations MDG Indicators database and the latest national MDG reports available online. The analysis therefore excludes Anguilla, Aruba, Bahamas, Cayman Islands, Dutch Antilles, Granada, Montserrat, Saint Vincent and the Grenadines and Trinidad and Tobago because no national MDG reports were available.

As the analysis is likely to be biased by insufficient metadata, the findings should be considered as an initial description to be used to launch the reconciliation dialogue among stakeholders.

The attached annex details the situation by country and indicator.

IV. Analysis of discrepancies relating to Millennium Development Goal target 1.B: Achieve full and productive employment and decent work for all, including women and young people

Following the guidelines of the conceptual framework described earlier, a set of generic situations needs to be considered in order to establish statistical discrepancies, both true and false.

Some national reports pre-date the revised MDG Monitoring Framework (2008), while others post-date the revised framework yet have continued to use the previous one, which does not include the MDG 1 target of decent work, with the result that these national MDG reports fail to include employment indicators.

The International Labour Organization (ILO) is the United Nations agency responsible for producing, calculating and publishing this indicator as part of the work of the Inter-Agency and Expert Group (IAEG) on MDG Indicators. ILO estimates employ data from a variety of international information repositories, including the Organisation for Economic Co-operation and Development (OECD), European Union statistical office (Eurostat) and United States Bureau of Labor Statistics (BLS).

Available international metadata show that the ILO produces aggregate estimates for regions and groups of countries. As not all countries report data for all years, econometric models are used to estimate labour market indicators in countries and years for which no observed data exist. These models use multivariate regression techniques to impute missing data at country level.

There are potential disparities between national and international data. First, the use of different sources can cause problems of comparability. Even though labour force surveys tend to be similar in their essential characteristics, they may contain non-comparable elements such as scope and geographical coverage, or variations in the definitions and concepts involved in international employment indicators. This is likely to lead to statistical discrepancies deemed **true or false statistical discrepancies** after ascertaining their possible causes.

A. Indicator 1.4: Growth rate of GDP per person employed

With specific reference to this indicator, the following general considerations could lead to true or false statistical discrepancies.

In accordance with international methodology, gross domestic product (GDP) per person employed (or labour productivity) is expressed as:

$$\text{GDP per person employed} = \frac{\text{GDP (measured at constant market prices in national currency)}}{\text{total employment}}$$

The growth rate of GDP per person employed is expressed as:

$$\text{Growth rate of GDP per person employed} = \frac{\text{GDP per person employed}_{\text{year } N} - \text{GDP per person employed}_{\text{year } N-1}}{\text{GDP per person employed}_{\text{year } N-1}} \times 100$$

ILO obtains GDP measures from national accounts. In order to make international comparisons of GDP per person employed, estimates of gross value added are always expressed as 1990 constant international dollars using purchasing power parity (PPP) rates. Employment data are obtained from labour force surveys or other household surveys, population censuses with specific employment modules and administrative records (of establishments), although they do not usually include informal sector employment. For OECD non-member countries, national accounts and labour statistics are compiled from national sources by the World Bank, Asian Development Bank, Food and Agriculture Organization of the United Nations (FAO), ILO and United Nations Statistics Division (UNSD).

Apart from these general considerations, the following country situations can be identified based on available information:

1. For some countries there is no data in either the national report or international database (Antigua and Barbuda, Argentina, Barbados, British Virgin Islands, Dominica, Guyana, Haiti, Peru, Saint Kitts and Nevis, Saint Lucia, Turks and Caicos Islands, Uruguay).
2. Some countries do not include this indicator in their national report, making it a false statistical discrepancy that could be resolved by including the respective official indicator in the national report (Belize, Bolivarian Republic of Venezuela, Brazil, Colombia, Ecuador, El Salvador, Jamaica, Nicaragua, Paraguay, Surinam).
3. Missing data in some countries' national report for some years may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database. These are false statistical discrepancies (Chile, Guatemala, Honduras, Mexico, Panama, Plurinational State of Bolivia).
4. Some national reports include data for years not available in the international database. Such true statistical discrepancies could be resolved by including this information internationally in line with the standards for ensuring comparability (Cuba, Dominican Republic, Guatemala, Honduras, Plurinational State of Bolivia).
5. For some countries and for selected years where comparison is possible, national and international sources report very different values, without metadata information and/or sources that might explain these differences, representing a true statistical discrepancy (Costa Rica, Dominican Republic, Honduras, Mexico, Panama).
6. In two countries there are major differences for some years but the available metadata show differences in their method of calculation, which would suggest they are different indicators, making them false statistical discrepancies (Chile, Plurinational State of Bolivia).

B. Indicator 1.5: Employment-to-population ratio

With specific reference to this indicator, the following general considerations could lead to true or false statistical discrepancies.

In accordance with international standards, the employment-to-population ratio (employment rate) is expressed as:

$$\text{Employment-to-population ratio} = \frac{\text{total employment}}{\text{working-age population}} \times 100$$

The working-age population is based on national definitions but most countries define it as people aged 15 years and above.

Total employment refers to people above a certain age who worked or held a job during a specified reference period, in exchange for pay or profit (or pay in kind), or who were temporarily absent from a job for such reasons as illness, maternity or paternal leave, holiday, training or industrial dispute. Unpaid family workers who work for at least one hour should be included in the employment count, although many countries use a higher number of hours as a threshold in their definition. The measure of employment is intended to capture people working in both the formal and informal sectors.

Data are obtained from population censuses, labour force or other household surveys, establishment surveys, administrative records, and official estimates based on results from several of these sources. Both components (employment and population) should come from the same source.

The ILO standard for the minimum working age is 15 years. Many countries have set this as the legal working age; some countries set a maximum working age, such as 65 or 70 years. However, if possible, population groups above this age threshold should be included in the employable population.

There are some potential disparities between national and international data. First, the official working age varies from country to country. For many countries, this age coincides with the standard age for completing compulsory education and starting working life. For other countries it is appropriate to include younger workers because the official working age is lower. Some countries have set a higher minimum working age in the hope that young people will complete a higher level of education before starting their working life. This is likely to lead to statistical discrepancies that are deemed **true or false statistical discrepancies** after ascertaining their possible causes.

Apart from this general consideration, the following country situations can be identified based on available information:

1. Two countries have no data in either the national report or the international database (Argentina, Uruguay).
2. Some countries do not include this indicator in their national report, making it a false statistical discrepancy that could be resolved by including the respective official indicator in the national report (Antigua and Barbuda, Barbados, Belize, Bolivarian Republic of Venezuela, Brazil, British Virgin Islands, Dominica, Ecuador, Guyana, Haiti, Jamaica, Nicaragua, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Turks and Caicos Islands).
3. The missing data for some years in some countries' national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database. These are false statistical discrepancies (Chile, Colombia, Cuba, El Salvador, Guatemala, Honduras, Mexico, Panama, Plurinational State of Bolivia, Surinam).
4. Some national reports include data for years not available in the international database. Such true statistical discrepancies could be resolved by including this information internationally in line with the standards for ensuring comparability (Cuba, Dominican Republic, El Salvador, Guatemala, Honduras, Plurinational State of Bolivia, Surinam).

5. For some countries and for selected years where comparison is possible, the national and international sources report very different values, without metadata information and/or sources that might explain these differences, representing a true statistical discrepancy (Colombia, Cuba).
6. As some countries consider an age range at variance with the international standard, it is considered a different indicator and hence a false statistical discrepancy that could be resolved by including the official indicator in the national report (Costa Rica, Dominican Republic, El Salvador, Guatemala, Mexico, Plurinational State of Bolivia).

C. Indicator 1.6: Proportion of employed people living below U\$1 (PPP) per day

With specific reference to this indicator, the following general considerations could lead to true or false statistical discrepancies.

According to ILO technical specifications, the proportion of employed people living below U\$1 (PPP) per day, or the proportion of working poor, is expressed as the proportion of employed persons living in a household whose members are estimated to be below the poverty line. The threshold used to calculate it can be both national poverty lines and the international poverty line of U\$1.25 PPP per day. Thus the working poor refer to the labour force living below the extreme poverty line.

The labour force is the economically active population aged 15 and above, or the sum of the number of people employed and the number unemployed.

The definitions, methodological guidelines and limitations relating to the poverty line follow the standards set for target 1.A indicators.

Employment is defined as those over the nationally defined working age (usually 15 years old) who worked during the specified reference period for pay or profit (or pay in kind), or who were temporarily absent from a job for such reasons as illness, maternity or paternal leave, holiday, training or industrial dispute. Unpaid family workers who work for at least one hour should be included in the employment count, although many countries use a higher number of hours as a threshold in their definition. The measure of employment is intended to capture people working in both the formal and informal sectors).

The number of working poor can be calculated by multiplying the labour force by the poverty rate.

Data on the labour market (labour force and total employment) come from population censuses, labour force or other household surveys, establishment surveys, administrative records and official estimates based on results from several of these sources.

The considerations described for indicator 1.5 regarding the minimum and maximum working age also apply in this case, potentially leading to true or false discrepancies.

To calculate the number of working poor, ILO uses World Bank poverty data based on the international poverty line of US\$ 1.25 per day. This is one of the possible causes of discrepancies with national data, which are usually based on national poverty lines. Such discrepancies would be considered as **false statistical discrepancies**.

ILO calculates high and low estimates of the working poor.

High estimates of the working poor are calculated using the equation: $working\ poor = poverty\ rate \times population_{15}$, where $population_{15}$ is the population aged 15 years and above.

Low estimates of the working poor are calculated using the equation: $working\ poor = poverty\ rate \times labour\ force_{15}$, where $labour\ force_{15}$ is the labour force aged 15 years and above.

Working poor data are based on a weighted average of data obtained using both methods (i.e. a weighted average of the high and low estimates). The assumption behind using the low estimate is that all working-age people in the labour force are employed. This assumption is made because in countries

where social safety nets do not exist, poor individuals must work in order to maintain a subsistence level. Thus the definition of working poor is based on poverty data (the international poverty line of US\$1.25 PPP per day calculated by the World Bank), but it also takes into account the distinctive characteristics of each country's labour market, such as the size of the working-age population or the labour market participation rate. By combining these labour market factors with poverty data, the working poor estimates provide a clearer picture of the relationship between poverty and employment than poverty data alone (source: country records, Costa Rica MDG workshop, UNSD).

Apart from this general consideration, the following country situations can be identified based on available information:

1. For some countries there is no data in either the national report or the international database (Antigua and Barbuda, Barbados, Belize, Bolivarian Republic of Venezuela, British Virgin Islands, Costa Rica, Cuba, Dominica, Guyana, Haiti, Jamaica, Paraguay, Saint Kitts and Nevis, Saint Lucia, Surinam, Turks and Caicos Islands, Uruguay).
2. Some countries do not include this indicator in their national report, making it a **false statistical discrepancy** that could be resolved by including the respective official indicator in the national report (Brazil, Colombia, Ecuador, Nicaragua).
3. The missing data for some years in some countries' national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database. These are **false statistical discrepancies** (Panama, Plurinational State of Bolivia).
4. Some national reports include data for years not available in the international database. Such **true statistical discrepancies** could be resolved by including this information internationally in line with the standards for ensuring comparability (Argentina, Chile, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Panama, Peru, Plurinational State of Bolivia).
5. For one country (Mexico), for years where comparison is possible, the available metadata indicate that it is the same indicator but insufficient information is available to explain the differences observed, representing a **true statistical discrepancy**.
6. For two countries, for years where comparison is possible, national reports state that national poverty lines are used, meaning that it is considered a different indicator and hence a **false statistical discrepancy** that could be resolved by including the official indicator in the national report (Guatemala, Peru).

D. Indicator 1.7: Proportion of own-account and contributing family workers in total employment

The following general considerations could lead to true or false statistical discrepancies.

The proportion of own-account and contributing family workers in total employment is expressed as the proportion of individuals working on their own account or with one or more partners who have not engaged on a continuous basis any employees to work for them, together with contributing family workers.

The same general considerations regarding employment apply as for the above-mentioned indicators.

Apart from these general considerations, the following country situations can be identified based on available information:

1. For some countries there is no data in either the national report or the international database (Argentina, Guyana, Haiti, Turks and Caicos Islands).

2. Some countries do not include this indicator in their national report, making it a **false statistical discrepancy** that could be resolved by including the respective official indicator in the national report (Antigua and Barbuda, Barbados, Belize, Bolivarian Republic of Venezuela, Brazil, British Virgin Islands, Colombia, Costa Rica, Dominica, Ecuador, Jamaica, Nicaragua, Paraguay, Saint Kitts and Nevis, Saint Lucia, Surinam, Uruguay).
3. The missing data for some years in some countries' national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database. These are **false statistical discrepancies** (Chile, Mexico, Panama, Plurinational State of Bolivia).
4. Some national reports include data for years not available in the international database. Such **true statistical discrepancies** could be resolved by including this information internationally in line with the standards for ensuring comparability (Cuba, Dominican Republic, El Salvador, Guatemala, Honduras, Peru, Plurinational State of Bolivia).
5. In some countries, for some years where comparison is possible, the available metadata and sources specified are not enough to explain the differences observed, representing a **true statistical discrepancy** (Dominican Republic, El Salvador, Guatemala, Honduras, Plurinational State of Bolivia).

V. Analysis of discrepancies relating to Millennium Development Goal target 2.A: Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling

Following the guidelines of the conceptual framework described earlier, a set of generic situations needs to be considered in order to establish true and false statistical discrepancies.

The United Nations Educational, Scientific and Cultural Organization (UNESCO), through its Institute for Statistics (UIS), is the United Nations agency responsible for producing, calculating and publishing the indicators for monitoring this target as part of the work of the Inter-Agency and Expert Group (IAEG) on MDG Indicators.

While international indicators use the definition for international primary education level in the UNESCO International Standard Classification of Education (ISCED 1997), countries use their existing educational structure according to the national education law to ensure that the conclusions of their report are relevant to the specific national education policy. This leads to a **false statistical discrepancy** running throughout the analysis, which is evident in cases where level 1 of the national educational trajectory designed to provide fundamental skills in reading, writing and mathematics does not coincide with the international primary education level.

In some cases, the population projections made by the United Nations Population Division (UNPD) to construct the international indicator differ from those used by countries. This leads to a **false statistical discrepancy** that has led to repeated demands from countries in the region for national projections to be used internationally.

A. Indicator 2.1: Net enrolment ratio in primary education

With specific reference to this indicator, the following general considerations could lead to true or false statistical discrepancies.

The international definition and methodology used globally in connection with the IAEG calls for the inclusion of all children who, despite being enrolled in secondary education, are of the age to be enrolled in primary education. This change in the traditional method of calculating the indicator is signalled in the official name used by UNESCO (*adjusted* net enrolment ratio in primary education) but not implemented in the MDG Monitoring Framework. Thus countries in the region tend to use the customary definitions without considering this particular methodological variation. This leads to a **false statistical discrepancy**, in that there are two different indicators without the proper identification in the international monitoring mechanisms.

Apart from this general consideration, the following country situations can be identified based on available information:

1. Some countries do not include this indicator in their national report because their targets do not refer to access to education and so they use other indicators more relevant to the targets, making it a **false statistical discrepancy** that could be resolved by including the respective official indicator in the national report (Argentina, Uruguay).
2. The missing data for some years in some countries' national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database. These are **false statistical discrepancies** (Belize, Brazil, British Virgin Islands, Chile, Cuba, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Peru, Saint Lucia)
3. Some national reports include data for years not available in the international database. Such **true statistical discrepancies** could be resolved by including this information internationally in line with the standards for ensuring comparability (Antigua and Barbuda, Barbados, Belize, Bolivarian Republic of Venezuela, Brazil, Chile, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Mexico, Paraguay, Saint Kitts and Nevis, Surinam, Turks and Caicos Islands).
4. In some countries, for years where comparison is possible, the expected relationship between the compared values occurs when the primary education level under national law is of longer duration than in the ISCED 1997 international classification, leading to a **false statistical discrepancy** (Belize, Brazil, Chile, El Salvador, Plurinational State of Bolivia).
5. In some countries, for years where comparison is possible, the expected relationship occurs when the national report includes the traditional net enrolment ratio rather than the adjusted ratio used at international level, leading to a **false statistical discrepancy** (Belize, Bolivarian Republic of Venezuela some years, Brazil, British Virgin Islands, Chile, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Panama some years, Paraguay some years, Peru, Plurinational State of Bolivia, Saint Lucia).
6. In some countries, for years where comparison is possible, the reverse relationship to the one expected occurs when the national report includes the traditional net enrolment ratio rather than the adjusted ratio used at international level, leading to a **true statistical discrepancy** (Bolivarian Republic of Venezuela some years, Costa Rica, Cuba, Dominica, Dominican Republic, Jamaica, Panama some years, Paraguay some years, Saint Kitts and Nevis, Surinam, Turks and Caicos Islands).
7. Some countries present **false statistical discrepancies** because they use indicators other than the official indicators (gross enrolment ratio in Colombia, attendance rate in Nicaragua).

8. Of particular note is the fact that some countries select a year more recent than 1990 as the baseline year in their national report despite the existence of a figure closer to 1990 in the international database, making this a **true statistical discrepancy** (Ecuador, Plurinational State of Bolivia).

B. Indicator 2.2: Proportion of pupils starting grade 1 who reach last grade of primary

Apart from the general considerations for this goal, the following points may be made about this indicator.

Regarding the use of the international definition and methodology, in the 2000 MDG Monitoring Framework this indicator referred to students who reached grade 5 of primary education after starting in grade 1. As from the 2008 revised framework, grade 5 was replaced by last grade of primary. This change has not been adopted by all countries in the region, with some continuing to report the original indicator. This leads to a **false statistical discrepancy**, in that there are two different indicators (where metadata in national reports are appropriate and sufficient to identify this situation). A further factor to consider is the published school reference year: as this indicator is constructed using data from two consecutive years, the indicator must identify the reference school year, failing which it is a **true statistical discrepancy** that can be resolved by correctly identifying the reference year.

The following specific observations may be made regarding the situation of individual countries based on available information:

1. For one country there is no data in either the national report or the international database (Antigua and Barbuda).
2. Some countries do not include this indicator in their national report to measure completion of primary education, making it a **false statistical discrepancy** that could be resolved by including the respective official indicator in the national report (Barbados, Colombia, Nicaragua, Saint Lucia, Uruguay).
3. The missing data for some years in some countries' national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database. These are **false statistical discrepancies** (Argentina, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico).
4. Some national reports include data for years not available in the international database. Such **true statistical discrepancies** could be resolved by including this information internationally in line with the standards for ensuring comparability (Argentina, Belize, Bolivarian Republic of Venezuela, British Virgin Islands, Chile, Costa Rica, Cuba, Dominican Republic, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Paraguay, Peru, Surinam, Turks and Caicos Islands).
5. Some countries use the survival rate to grade 5 instead of the last grade of primary (which is grade 6 in most countries in the region in line with the international classification), representing a **false statistical discrepancy** that could be resolved by including the official indicator in the national report (Argentina, Belize, Cuba, Dominica, Jamaica, Paraguay).
6. Some countries include indicators more relevant to the target but at variance with the official indicator, leading to **false statistical discrepancies** that could be minimized by including the official indicator in the national report (Bolivarian Republic of Venezuela, Brazil, British Virgin Islands, Ecuador, Mexico, Peru, Plurinational State of Bolivia, Surinam).
7. Some countries construct the official indicator by using complete cohorts instead of hypothetical cohorts, leading to possible **false statistical discrepancies** (Bolivarian Republic of Venezuela, Dominica).
8. In some countries, for some years where comparison is possible, the available metadata and sources specified are not enough to explain the differences observed, representing a **true**

statistical discrepancy (Costa Rica, Dominican Republic, Guyana, Honduras, Saint Kitts and Nevis, Turks and Caicos Islands).

9. Panama proposes a more stringent indicator in its national report although the expected relationship with the official indicator does not occur, representing a **true statistical discrepancy**.

C. Indicator 2.3: Literacy rate of 15-24 year-olds, women and men

The following general observations may be made about all countries in respect of this indicator.

As regards the use of the international definition and methodology, this indicator refers to the 15-24 year age group; however some countries have information for adult illiteracy (15 years and above), which can lead to a **false statistical discrepancy**. While differing national definitions for a literate person can result in non-comparable data among countries, this should not affect comparability between international and national data because international data are based on surveys and censuses of national data.

Apart from these general considerations, the following country situations can be identified based on available information:

1. For one country there is no data in either the national report or the international database (Barbados).
2. Some countries do not include this indicator in their national report, making it a **false statistical discrepancy** that could be resolved by including the respective official indicator in the national report (Argentina, Nicaragua, Saint Kitts and Nevis, Uruguay).
3. The missing data for some years in some countries' national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database. These are **false statistical discrepancies** (Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Mexico, Panama, Paraguay, Peru).
4. Some national reports include data for years not available in the international database. Such **true statistical discrepancies** could be resolved by including this information internationally in line with the standards for ensuring comparability (Bolivarian Republic of Venezuela, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Panama, Paraguay, Peru, Plurinational State of Bolivia, Turks and Caicos Islands).
5. Some countries use proxy indicators or indicators relating to different age groups when they are unable to calculate the official indicator. This is a **false statistical discrepancy** (Antigua and Barbuda, British Virgin Islands, Dominica).
6. In some countries, for some years where comparison is possible, the available metadata and sources specified are not enough to explain the differences observed, representing a **true statistical discrepancy** (Dominican Republic, Guyana, Honduras, Panama, Peru, Saint Lucia, Suriname).
7. For two countries, similar data is presented in both the national report and international database for different and consecutive years. This possible shifting of the base year is considered a **true statistical discrepancy** (Belize, Chile).
8. For Costa Rica, a projection is presented for the same year in both the national report and international database, yielding different values (**true statistical discrepancy**) without sufficient metadata.
9. Cuba's report includes data for a series of years not available in the international database, which are presumably projections from the 2002 census data, with 2009 available and in agreement. These differences are considered **false statistical discrepancies**.

VI. Analysis of discrepancies relating to Millennium Development Goal target 4.A: Reduce by two thirds, between 1990 and 2015, the under-five mortality rate

The analysis of this target only considers the indicators of under-five mortality rate and proportion of one year-old children immunised against measles, leaving aside the child mortality rate indicator because the analysis and conclusions relating to the under-five mortality rate indicator also apply to the child mortality rate indicator.

A. Indicator 4.1: Under-five mortality rate

Following the guidelines of the conceptual framework described earlier, a set of generic situations needs to be considered in order to establish statistical discrepancies for this indicator, both true and false.

The Inter-agency Group on Child Mortality Estimation (IGME), comprising the United Nations Children's Fund (UNICEF), World Health Organization (WHO), United Nations Population Division and World Bank, is the United Nations agency responsible for producing, calculating and publishing the indicator for monitoring this target as part of the work of the Inter-Agency and Expert Group (IAEG) on MDG Indicators.

IGME uses estimation models based on all sources available at country level concerning child mortality. Thus the values produced by the model are expected to smooth temporal behaviour without favouring any particular source beyond the weightings assigned by the model based on the reliability and coverage of data from different sources. This is likely to lead to a statistical discrepancy because countries generally tend to use a single information source to report this indicator. Such discrepancies will be smaller (or non-existent) where only traditional information sources (vital statistics and health statistics) are available and are of high statistical quality. The more stable and permanent this situation becomes, the greater the likelihood that the values will match. According to the current analysis, this is a **false statistical discrepancy**, as it is virtually a case of two different indicators (owing to the different methodologies and sources used), even though they are called by the same name.

While use of IGME model estimates allows values to be derived for all years, countries are likely to include only years for which some mechanism exists for collecting and producing information to calculate the mortality rate.

Apart from this general consideration, the following country situations can be identified based on available information:

1. The missing data for some years in some countries' national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database, which covers the entire period under consideration thanks to the estimates used in the model. These are **false statistical discrepancies** (Barbados, Belize, British Virgin Islands, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia, Saint Kitts and Nevis, Saint Lucia, Surinam, Turks and Caicos Islands).
2. Antigua and Barbuda includes in its national report a figure for 1991 that is not available in the international database. This **true statistical discrepancy** could be resolved by including this information internationally in line with the standards for ensuring comparability.
3. In compliance with the general provisions, some countries use a single information source and calculation methodologies at variance with the international one, with the result that the values presented in their national reports differ from those used internationally in accordance with the IGME model. These **false statistical discrepancies** are minor in a small group of countries (Argentina, Brazil, Cuba, Haiti, Mexico, Nicaragua) and larger or fluctuating in most countries (Antigua and Barbuda, Belize, Bolivarian Republic of Venezuela, British Virgin Islands, Colombia, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Panama, Paraguay, Peru, Plurinational State of Bolivia, Surinam, Turks and Caicos Islands, Uruguay).
4. Some countries use proxy indicators or indicators relating to different age groups or non-annual time periods, possibly in response to specific public policies or national targets. This is a **false statistical discrepancy** that could be resolved by including the official indicator in the national report (Chile, Costa Rica, Honduras).
5. In some countries, for some years where comparison is possible, the available metadata and sources specified are not enough to explain the differences observed, representing a **true statistical discrepancy** (Jamaica, Saint Kitts and Nevis, Saint Lucia).
6. In some countries there are internal inconsistencies in figures, tables, annexes and citations between national and international data, which requires one particular data source or series to be selected from within the report in order to make a comparison, representing a **true statistical discrepancy** (Dominican Republic, Guyana, Peru).
7. In the case of British Virgin Islands, there is a striking inconsistency between the values for the under-five mortality rate and child mortality rate published in the national report. In the report, the values for the child mortality rate and number of deaths in infants under one year of age are higher than the mortality rate and number of deaths in children under five years of age respectively, something that could never occur in principle. This might indicate that the under-five mortality rate actually refers to the 1-5 year age group, representing an error in the way this indicator is defined and calculated at national level. This is a **true statistical discrepancy**.

B. Indicator 4.3: Proportion of one year-old children immunized against measles

A set of generic situations relating to methodology needs to be considered in order to establish statistical discrepancies, both true and false.

The World Health Organization (WHO) and United Nations Children’s Fund (UNICEF) are the United Nations agencies responsible for producing, calculating and publishing the indicator for monitoring this target as part of the work of the Inter-Agency and Expert Group (IAEG) on MDG Indicators.

The data requested from national ministries of health for producing international estimates come from administrative records, national health surveys and official data on estimated vaccination coverage against measles. In response to each country’s particular situation, the necessary adjustments are made in consultation with national teams. No adjustments are made where there is only one national source of information, nor when data come from country clusters defined by a particular criterion. For the final calculation, priority is given to data from administrative records and official national reports, unless there is evidence that they are inaccurate.

In accordance with the technical specifications defined by the international agencies responsible for calculating this indicator internationally, any values exceeding 100% that have been estimated from national sources cited by countries are reported as 99%. As a result, the international database contains no value equal to 100%. For the current analysis, this situation (national values 100% and international values 99%) is considered a **false statistical discrepancy**, as the national value is virtually the same as the value reported internationally in accordance with the standard.

The indicator is estimated as the percentage of children aged 12-23 months who usually received their first dose of measles vaccine at the age of nine months.

Apart from these general considerations, it is possible to draw a number of conclusions from country situations based on available information:

1. Some countries do not include this indicator in their national report, making it a **false statistical discrepancy** that could be resolved by including the respective official indicator in the national report (Barbados, Bolivarian Republic of Venezuela, Haiti, Nicaragua, Saint Kitts and Nevis, Saint Lucia, Uruguay).
2. The missing data for some years in some countries’ national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database. These are **false statistical discrepancies** (Belize, Chile, Colombia, Cuba, Dominica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Panama, Peru, Plurinational State of Bolivia).
3. Some national reports include data for years not available in the international database. Such **true statistical discrepancies** could be resolved by including this information internationally in line with the standards for ensuring comparability (British Virgin Islands, Turks and Caicos Islands).
4. In some countries, for some years, minor differences in the order of 99% versus 100% are identified in the general considerations, representing **false statistical discrepancies** (Antigua and Barbuda, Argentina).
5. Some countries use proxy indicators or indicators relating to different age groups when they are unable to calculate the official indicator or in response to specific public policies or national targets. This is a **false statistical discrepancy** that could be resolved by including the official indicator in the national report (Costa Rica, Cuba, El Salvador, Guatemala, Peru, Plurinational State of Bolivia).
6. In some countries, for some years where comparison is possible, the available metadata and sources specified are not enough to explain the differences observed, representing a **true statistical discrepancy** (Antigua and Barbuda, Belize, Brazil, Chile, Dominica, Dominican Republic, Ecuador, Guyana, Panama, Surinam).
7. Anomalies observed in some countries’ national reports include: a mismatch between the target, vaccination laws and indicator (Costa Rica); matching data between national and international sources when they actually refer to different age groups (Honduras, Paraguay); or theoretically impossible values (more than 100% in the case of the Dominican Republic).

VII. Analysis of discrepancies relating to Millennium Development Goal target 5.A: Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio

This comparison exercise includes only the maternal mortality ratio indicator, as it is similar to the under-five mortality rate indicator presented above in terms of the international agencies involved in producing it and estimating it globally using statistical models.

A. Indicator 5.1: Maternal mortality ratio

Before describing the specific situations of countries in the region, it is necessary to consider a set of generic situations that lead to true or false statistical discrepancies and that define the methodological framework for the comparison.

The Maternal Mortality Estimation Inter-agency Group (MMEIG), comprising the World Health Organization (WHO), United Nations Children's Fund (UNICEF), United Nations Population Fund (UNFPA) and World Bank, is the United Nations agency responsible for producing, calculating and publishing the indicator for monitoring this target as part of the work of the Inter-Agency and Expert Group (IAEG) on MDG Indicators.

The international source used for the following analysis were the maternal mortality estimates produced by MMEIG. It is these estimates, through UNICEF as lead agency for MDG5 monitoring, that are incorporated into the international database for tracking this goal.

The estimates are based on a variety of national sources (vital records, household surveys, censuses, indirect methods, verbal autopsies, etc.) and their use –and estimation methodology– depend on the quality of information available. Countries are classified into three groups: A, B and C. For countries in group A² (civil registration characterized as complete, with good attribution of cause of death), the estimate is made for each of the target years $t = 1990, 1995, 2000, 2005$ and the latest available year (in this case 2008), by pooling available civil registration data on maternal deaths for each

² Argentina, Bahamas, Barbados, Belize, Bolivarian Republic of Venezuela, Chile, Colombia, Costa Rica, Cuba, Guatemala, Mexico, Panama, Surinam, Trinidad and Tobago and Uruguay.

five-year period from year $t-2$ to year $t+2$. Civil registration data for all countries in the world in group A are then adjusted by a factor of 1.5 for incompleteness and assumed misclassification of the cause of death. This adjustment factor is different in countries for which specific studies provide more accurate maternal death values. Maternal mortality data for countries in group B³ (lacking good complete registration data but where other types of data are available) and those in group C⁴ (no national data on maternal mortality meeting the criteria) are estimated using a multilevel regression model (or hierarchical linear model) for the years 1990, 1995, 2000, 2005 and the latest available year (in this case 2008), after adjusting for incompleteness and misclassification of the cause of death. The selected covariates of the model are per capita GDP, general fertility rate and presence of a skilled attendant at birth as a proportion of total live births, together with random components relating to the country (where national maternal mortality data exists) and region. Use of this estimation methodology based on available national information leads to false statistical discrepancies from the data in national reports, most of which are based on a single source (usually vital statistics) and on differing estimation methodologies, as well as differing treatment of incompleteness and misclassification. Thus, while there is no immediate correlation between the values, there is an explanation for the differences.

The current comparison considers an average of available national data using the same system as for international data (for each of the target years $t = 1990, 1995, 2000, 2005$ and 2008, averaging available data for the five-year period $t-2$ to $t+2$).

In appropriate cases (group A countries), consideration is given to applying the international adjustment factor to data in the national report with the aim of approximating national data to international data. If the differences are still wide, they are considered **true statistical discrepancies**.

Apart from this general consideration, the following country situations can be identified based on available information.

1. For one country there is no data in either the national report or the international database (Saint Lucia).
2. Nicaragua does not include this indicator in its national report, making it a **false statistical discrepancy** that could be resolved by including the respective official indicator in the national report.
3. The missing data for some years in some countries' national reports may stem from the selection of specific years or from the use of primary sources to calculate data, instead of including the entire series available in the international database, which covers the entire period under consideration thanks to the estimates used in the model. These are **false statistical discrepancies** (Belize, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Paraguay, Peru, Plurinational State of Bolivia, Surinam).
4. Some countries include data for years not available in the international database. This **true statistical discrepancy** could be resolved by including this information internationally in line with the standards for ensuring comparability (Antigua and Barbuda, British Virgin Islands, Dominica, Saint Kitts and Nevis, Turks and Caicos Islands).
5. In compliance with the general provisions and considering the adjustment factor where applicable, some countries present minor differences or matching data, making them **false statistical discrepancies** (Argentina, Chile, Costa Rica, Jamaica, Uruguay).
6. In compliance with the general provisions and considering the adjustment factor where applicable, some countries present major differences for the entire period or for specific years where a comparison is possible, representing **true statistical discrepancies**, especially if the available metadata is not enough to explain the differences observed (Barbados, Bolivarian Republic of

³ Brazil, Dominican Republic, Ecuador, El Salvador, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Paraguay, Peru and Plurinational State of Bolivia.

⁴ There are no Latin American or Caribbean countries in this group.

Venezuela, Brazil, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Panama, Paraguay, Peru, Plurinational State of Bolivia, Suriname).

7. Of special note are Guatemala and Mexico, whose national values are higher than international values after applying the adjustment factor (1.5). However, these countries report that maternal mortality values have already been adjusted to remedy the problem of underreporting of maternal deaths, suggesting that a second adjustment of the value reported by the country may be taking place at international level.

VIII. Analysis of discrepancies relating to Millennium Development Goal target 7.C: Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

The key role of water and sanitation in public welfare is widely recognized and they are positioned high on national and international development agendas. Owing to their close link with people's level of development and quality of life, a number of international agreements define water and sanitation objectives, and various composite indices include indicators of use or access.⁵ In July 2010, the United Nations General Assembly explicitly recognized the human right to water and sanitation, reaffirmed clean drinking water and sanitation as a human right essential for the full enjoyment of all human rights and acknowledged their heavy impact on mortality, malnutrition and other diseases especially gastrointestinal diseases. MDGs incorporate target 7.C, which aims to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation, and the two indicators used to monitor achievement of the target on the proportion of population using an improved drinking water source (indicator 7.8) and the proportion of population using an improved sanitation facility (indicator 7.9).

Both indicators are collected by WHO and UNICEF through the Joint Monitoring Programme (JMP) for Water Supply and Sanitation, the official United Nations mechanism tasked with producing information for the United Nations Secretary General on progress in achieving the Millennium Development Goals relating to water supply and sanitation.

JMP bases its information on a variety of sources available at the country level, which are usually combined to produce a single estimate.

⁵ Including the Human Poverty Index (HPI), calculated by the United Nations Development Programme (UNDP), and the Multidimensional Poverty Index (MPI), calculated by the Oxford Poverty & Human Development Initiative (OPHI).

These sources include:

- (a) population and housing censuses
- (b) multi-purpose household surveys (MPHS)
- (c) demographic and health surveys (DHS)
- (d) multiple indicator cluster surveys (MICS)
- (e) living standards measurement surveys (LSMS)
- (f) core welfare indicator questionnaires (CWIQ)
- (g) world health surveys (WHS)
- (h) household budget surveys (HBS)

JMP reports both indicators 7.8 and 7.9 on its website as national totals, broken down into urban and rural areas for the series 2000-2012 (latest available year). It also publishes methodological documents and various information materials for countries on international calculation methods and tools and manuals to help them to progress in harmonizing water and sanitation statistics. Country files may also be downloaded, which include the original national data used to produce the estimates. This has allowed JMP to comply with countries' repeated demands for transparency on the methods used by international agencies to generate global estimates.

JMP reports that it adjusts country data (for both indicators 7.8 and 7.9) using linear regression, considering urban and rural disaggregates separately. Total estimates are based on the aggregate of the population-weighted urban and rural numbers, divided by the total population. The population data come from the United Nations Population Division. Estimates are provided for all years between the baseline of 1990 and the latest available year and, wherever necessary, JMP extrapolates the linear regression line up to two years before or after the earliest or latest data point, or even beyond (Quiroga, 2011). JMP also adjusts census and survey information where it is insufficiently disaggregated by type of water source or sanitation facility.

An analysis of national MDG reports confirms that all countries include in their national report target 7.C and the indicators for monitoring it. Most countries also provide an explanatory note or information sheet to describe the source and methodology used. Some more highly developed Latin American countries with more stringent standards regarding what constitutes an improved water source also include complementary indicators or use adapted indicators to ascertain the population with access to piped water.

A comparison between information reported by countries in their national MDG reports and information published internationally reveals significant differences in the levels of the indicators and trends over time. Under the current analysis, as JMP produces estimates and does not use the data reported by countries directly, any differences between the values reported by countries and those published by the international agency are **false statistical discrepancies**.

The widest discrepancies are observed in the values reported for rural areas and in data for the baseline year 1990 and thereabouts. While this does not present major problems if the methodology and sources are explained, because the indicator refers to a quantitative target measured relative to a baseline year, such differences often lead to conflicting reports on whether or not the target has been met, depending on whether they come from the international agency or a particular country.

It is also worth noting that, for the indicators on the use of both drinking water and sanitation facilities, the statistics reported by individual countries do not tend to be comparable with other countries in the region. This is worrying because the plan is to progress towards more complex comparable indicators which, in the case of water, will measure not only access to water but also its quality for human consumption. In the case of sanitation, attention should also be paid to the wording of indicators that include wastewater management and proper excreta disposal. Excreta disposal is still a major problem for some countries in the region, representing a hazard to human health and hygiene. One of the biggest problems is low levels of wastewater treatment, which is damaging to the environment. JMP is therefore making great efforts to harmonize questions on water and sanitation in national household

surveys. One of its main goals has been for countries to include questions in their information collection mechanisms that elicit more disaggregated data on water sources and types of sanitation facility.

A. Indicator 7.8: Proportion of population using an improved drinking water source

JMP defines improved drinking water sources in line with the International Recommendations for Water Statistics (IRWS)⁶ of the United Nations Statistics Division, which establish the principles, concepts and definitions for the collection and compilation of comparable water statistics. According to JMP, an improved drinking-water source is one that, by nature of its construction, adequately protects the source from outside contamination, in particular from contamination with faecal matter. According to the international recommendations and JMP, improved and unimproved water sources are as follows.

TABLE 1
WATER SOURCES

Population using improved water sources
Piped water into housing unit/living quarters (dwelling, plot or yard)
Connection to water supply network
Other piped water into housing unit/living quarters
Public standpipe
Boreholes
Protected dug wells
Protected springs
Rainwater collection (collection of precipitation)
Bottled water (along with other improved sources for hygiene and cooking)
Population using unimproved drinking water sources
Bottled water (along with other unimproved water sources for hygiene and cooking)
Unprotected dug wells
Unprotected springs
Cart with small tank/drum
Surface water (river, dam, lake, pond, stream, canal, irrigation channel)
Bottled water (if a secondary available source is also improved)
Tanker truck

Source: International Recommendations for Water Statistics.

As the above table shows, at international level the population using an improved drinking water source is broken down by type of improved source: piped water into housing unit/living quarters; public standpipe; borehole; protected dug well; protected spring; rainwater collection; and bottled water (along with other improved sources for hygiene and cooking).

Below is a list of generic situations that lead to statistical discrepancies.

1. **Information source.** Unlike the international agency, countries tend to report a single source, or combine within the series (but for different years) information from population censuses, surveys and service provider records, especially when measuring coverage in urban areas. Reporting years depend on the source used. Ten countries report using household surveys as their only source. Four countries use more than one information source, in accordance with the corresponding observation year. Two countries use only administrative records from service providers.
2. **Definition of improved water source.** The list of sources considered by Latin American countries as improved tends to be rather shorter than that used internationally. The only

⁶ See online: <http://unstats.un.org/unsd/envaccounting/irws/>.

improved source that some countries recognize is water piped into housing units/living quarters water by a public or private service provider, excluding wells and alternative water collection systems. As table 3 shows, Bolivarian Republic of Venezuela, Brazil, Ecuador, Honduras and Uruguay include only the population supplied by a household water connection.

In addition, some countries distinguish between improved sources in different geographic areas, limiting the list of sources in urban areas and expanding alternative sources in rural areas. For instance, Brazil, Chile, Colombia and Honduras distinguish between improved sources in rural areas and improved sources in urban areas; Colombia and Plurinational State of Bolivia list public standpipes and tube wells as improved but only in rural areas. Chile lists dug wells and tube wells only in rural areas. Only four countries consider protected springs and rainwater collection as improved water sources.

TABLE 2
INFORMATION SOURCES USED BY COUNTRIES TO CONSTRUCT INDICATOR 7.8

National Millennium Development Goals report	Information source used for indicator 7.8
Argentina, 2010	Main source: national population, household and housing census for 1990-2002. Data subsequent to 2002 estimated by the National Agency for Water and Sanitation Works (ENOHSA) based on figures from the National Statistics and Census Institute (INDEC).
Bolivia (Plurinational State of), 2010	Main source: population and housing censuses. Administrative records/ PROAGUAS survey (Ministry of Water) are also used.
Brazil, 2010	National household sample survey (PNAD), for 1992, 1993, 1995-1999 and 2001-2008.
Chile, 2010	National socio-economic survey (CASEN) for the respective years.
Colombia, 2008	General census for 1993. National household survey (ENH) for 1996-2000. Continuous household survey (ECH) for 2001-2005. Great integrated household survey (GEIH) for 2007.
Costa Rica, 2010	Costa Rican Water Supply and Sewerage Institute (AyA), based on the records of drinking water supply managers, which include: systems managed by municipalities; rural water supply management committees (CAAR); water supply and sewerage management associations (ASADAS); the Heredia public utility company (ESPH); and AyA itself.
Cuba	Hydraulic Works Department. National Water Resources Institute (INRH). National Statistical Office.
Ecuador, 2007	Survey of living conditions (ECV) for 2006.
El Salvador, 2009	Multi-purpose household survey (EHPM). Different years.
Guatemala 2010	National survey of living conditions (ENCOVI) (2006) and Institute for Agriculture, Natural Resources and Environment of Rafael Landívar University (IARNA)/Presidential Planning and Programming Secretariat (SEGEPLAN) (2009).
Honduras, 2010	Permanent multi-purpose household survey (EHPM), May of corresponding years.
Mexico, 2010	General population and housing census for 1990, 2000 and 2010; first and second population and housing counts in 1995 and 2005.
Panama, 2009	National population and housing censuses for 1990 and 2000/household survey for 2006 and 2007.
Paraguay, 2011	Integrated household survey (EIH), for 1997/1998 and 2000/2001. Continuous household survey (EPH) for 1999 and 2002-2010.
Peru, 2010	National household survey (ENAHO) for 2001-2009. Data updated by applying weighting factors estimated from 2007 population census results.
Dominican Republic, 2010	National demographic and health survey (ENDESA).
Uruguay, 2010	Expanded national household survey (ENHA) and continuous household survey (ECH).
Venezuela (Bolivarian Republic of), 2010	Cadastre of water companies and census data.

Source: Prepared by the author on the basis of the respective countries' Millennium Development Goal reports.

TABLE 3
IMPROVED WATER SOURCES INCLUDED BY COUNTRIES IN THEIR NATIONAL MILLENNIUM DEVELOPMENT GOAL REPORTS

	Piped water into housing unit/living quarters	Public standpipe	Boreholes	Protected dug wells	Protected springs	Rainwater collection (collection of precipitation)	Bottled water ^a
Argentina, 2010	Urban/rural	Urban/rural					
Bolivia (Plurinational State of, 2010)	Urban/rural	Rural	Rural				
Brazil, 2010	Urban/rural						
Chile, 2010	Urban/rural		Rural	Rural			
Colombia, 2008	Urban (*municipal capital)/rural	Rural	Rural				includes only the municipal capital ^a
Costa Rica, 2010	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	
Cuba, 2010	Urban/rural	Urban/rural					
Ecuador, 2007	Urban/rural						
El Salvador, 2009	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	
Guatemala, 2010	Urban/rural	Urban/rural					
Honduras, 2010	Urban/rural		Rural				
Mexico, 2010	Urban/rural	Urban/rural					
Panama, 2009	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	
Paraguay, 2011	Urban/rural	Urban/rural	Urban/rural	Urban/rural			
Peru, 2010	Urban/rural	Urban/rural					
Dominican Republic, 2010	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	
Uruguay, 2010	Urban/rural						
Venezuela (Bolivarian Republic of, 2010)	Urban/rural						

Source: Prepared by the author on the basis of the respective countries' Millennium Development Goal reports.

^a Along with other improved sources for hygiene and cooking.

- 3. Lack of information regarding protected wells and springs.** Country information collection instruments do not always disaggregate data sufficiently by type of water source, especially into protected and unprotected wells and springs. While Colombia, Costa Rica, Honduras, Paraguay and Plurinational State of Bolivia include well water as an improved source, the metadata do not indicate whether it is a protected well. Costa Rica includes springs and surface water as improved sources without stating whether or not they are protected. For rural areas, Chile includes “other sources of tap water within the dwelling and within the site”, without explaining what these sources are; in addition to piped water, Colombia includes as improved sources in rural areas alternative solutions (another source of piped water, well with pump or public fountain) without specifying whether or not these sources are protected. For these reasons, JMP reports that it adjusts information from censuses or surveys where they are insufficiently disaggregated by type of water source.
- 4. Denominator.** Depending on the information source used, the indicator is measured in relation to the total population, households or housing, which leads to differences in indicator values. Chile, Guatemala and Uruguay calculate the indicator using as the denominator the total number of households. Colombia, Ecuador and Honduras use the number of dwellings as the denominator. Although many countries use the total population as the denominator, in accordance with the indicator's official definition, discrepancies usually occur as a result of using different methods to calculate and interpolate the population in periods between censuses.
- 5. Other variables:** Cuba considers the volume of water reaching the dwelling and distance from the public fountain, differentiated between rural and urban areas.

B. Indicator 7.9: Proportion of population using an improved sanitation facility

JMP divides sanitation facilities into four types:

- improved sanitation facilities
- shared sanitation facilities
- unimproved sanitation facilities
- open defecation

As with drinking water, JMP defines improved sanitation facilities in line with the International Recommendations for Water Statistics (IRWS)⁷ of the United Nations Statistics Division. **An improved sanitation facility is one that hygienically separates human excreta from human contact.** Main sanitation facilities are disaggregated into two categories: improved sanitation facilities (T.1) and unimproved sanitation facilities (T.2). For assessing the access of the population to the sanitation facilities, it is important to know whether these facilities are shared by more than one household or are for the exclusive use of a particular household, as shared facilities are not currently considered as improved facilities.

TABLE 4
SANITATION FACILITIES

Population using improved sanitation facilities
Flush/pour or flush toilet to piped sewer system
Connected to wastewater treatment
Not connected to wastewater treatment
Flush/pour or flush toilet to septic tank
Flush/pour or flush toilet to pit
Ventilated improved pit latrine
Pit latrine with slab
Composting toilet
Population using unimproved sanitation facilities
Flush or pour flush toilets that empty into the street, a yard or plot, artificial channel or some other nearby location, excluding flush or pour flush toilets that empty into pits, septic tanks or sewers
Pit latrines without slabs, for example, a hole in the ground for excreta collection, which does not have a squatting slab, platform or seat
Open pits, that is, simple holes in the ground to collect excreta
<i>Buckets for the collection of faeces (and sometimes urine and anal cleaning material), which are periodically removed for treatment or disposal</i>
<i>Hanging toilet/hanging latrines built over the sea, a river or other body of water, into which excreta drops directly</i>
No toilet facilities; for example, using bushes, trees, ditches or open spaces (such as fields, drainage channels, beaches, rivers or the sea) as a toilet, or burying excreta in dirt

Source: International Recommendations for Water Statistics.

Below is a list of generic situations that lead to true or false statistical discrepancies.

1. **Information source.** As with the water indicator, in the case of sanitation facilities countries tend to report a single source, or combine within the series information from population censuses, surveys and service provider records, especially when measuring coverage in urban areas. Reporting years depend on the source used.

⁷ See online: <http://unstats.un.org/unsd/envaccounting/irws/>.

2. **Definition of an improved sanitation facility.** There are major differences among countries in the region with regard to what they consider to constitute improved sanitation facilities. As in the case of water sources, some countries in the region distinguish between geographic areas in terms of the facilities they consider as improved, with fewer types of facility considered as improved in urban areas and a longer list of alternatives in rural areas. Chile, Colombia, Honduras and Plurinational State of Bolivia report the indicator for urban areas only. Other countries include flush/pour or flush toilets to a septic tank or pit but do not include latrines. Only one country considers a composting toilet as an improved facility. The following table illustrates the types of sanitation facility considered by countries as improved. It shows that Argentina and Bolivarian Republic of Venezuela include only sanitation facilities connected to the piped sewer system as improved. Brazil, Chile, Costa Rica and Guatemala also include flush/pour or flush toilets to a septic tank. Ecuador, Mexico, Peru, Plurinational State of Bolivia and Uruguay include flush/pour or flush toilets to a pit. Only seven countries include latrines and only El Salvador includes all the categories in the international list.

TABLE 5
SANITATION FACILITIES CONSIDERED BY COUNTRIES AS IMPROVED

	Flush/pour or flush toilet to piped sewer system	Flush/pour or flush toilet to septic tank	Flush/pour or flush toilet to pit	Ventilated improved pit latrine	Pit latrine with slab	Composting toilet
Argentina, 2010	Urban/rural					
Bolivia (Plurinational State of), 2010	Urban	Rural	Rural			
Brazil, 2010	Urban/rural	Urban/rural				
Chile, 2010	Urban	Urban				
Colombia, 2008	Urban	Rural	Rural	Rural	Rural	
Costa Rica, 2010	Urban/rural	Urban/rural				
Cuba, 2010	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	
Ecuador, 2007	Urban/rural	Urban/rural	Urban/rural			
El Salvador, 2009	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural
Guatemala, 2010	Urban/rural	Urban/rural				
Honduras, 2010	Urban/rural	Urban/rural	Rural	Rural	Rural	
Mexico, 2010	Urban/rural	Urban/rural	Urban/rural			
Panama, 2009	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	
Paraguay, 2011 ^a	Urban/rural					
Peru, 2010	Urban/rural	Urban/rural	Urban/rural			
Dominican Republic, 2010	Urban/rural	Urban/rural	Urban/rural	Urban/rural	Urban/rural	
Uruguay, 2010 ^b	Urban/rural	Urban/rural	Urban/rural			
Venezuela (Bolivarian Republic of), 2010	Urban/rural					

Source: Prepared by the author on the basis of the respective countries' Millennium Development Goal reports.

^a Paraguay's report does not include methodological notes explaining which facilities the country considers as improved.

^b Countries that do not specify whether or not facilities must be connected to a wastewater treatment plant.

3. **Inclusion of shared facilities.** El Salvador lists shared facilities as improved facilities. Sources included: private or shared flush/pour or flush toilet to piped sewer system; private or shared flush/pour or flush toilet to septic tank; private or shared latrine. Even though the current MDG Monitoring Framework does not include shared facilities as improved facilities, there is an ongoing international debate on whether shared facilities should be considered as improved. The main reason for not considering them as improved is that they do not ensure the required hygienic conditions because the number of people using them cannot be controlled, and some studies have demonstrated a high correlation between the standard of hygiene in a facility and the number of people using it. The debate therefore revolves around how many households can share a facility for it to be considered improved.

4. **Inclusion of facilities that discharge into water bodies.** Mexico's national report states that improved sanitation facilities also include dwellings with facilities that empty into a river, lake, sea, ravine or crevasse. Honduras states that it includes as improved sanitation facilities in urban areas flush/pour or flush toilets to the piped sewer system discharging into a river, lake or the sea.
5. **Denominator.** Depending on the information source used, the indicator is measured in relation to the total population, households or housing, which leads to differences in indicator values. Chile, Guatemala and Uruguay calculate the indicator using as the denominator the total number of households. Colombia, Ecuador and Honduras use the number of dwellings as the denominator. Mexico reports the indicator based on the total number of occupants in inhabited private dwellings. Although many countries use the total population as the denominator, in accordance with the indicator's official definition, differences usually occur as a result of using different methods to calculate and interpolate the population in periods between censuses.

IX. Conclusions

Discrepancies between the values used by United Nations agencies responsible for monitoring MDGs to produce global indicators and the values used by countries in their national MDG reports are of concern to statistical work programmes in all areas. Each of the stakeholders involved in the process of producing, compiling, disseminating and using the statistics needed to monitor the targets set at the Millennium Summit in 2000 defines areas of work intrinsic to the type of information in question and to the institutional structures responsible for implementing the required mechanisms. The international statistical community is committed to finding opportunities for dialogue in order to devise strategies for resolving statistical discrepancies, especially in view of the imminent deadline for achieving the MDGs.

The Latin American and Caribbean region is no stranger to this situation, and the treatment of statistical discrepancies has been the subject of repeated efforts by ECLAC on a regional level, in response not only to the concerns expressed by countries of the region at the highest-level institutional forums in the field of official statistics, but also to the desire of international agencies for more and better information to further the assessment of countries' progress in achieving the targets, based on robust empirical evidence.

The diversity of MDG thematic areas and indicators results in a wide range of situations and specificities too complex to address generically, calling for the development of a set of actions differentiated according to the specific characteristics of each thematic area, as well as to the widely varying degrees of development and maturity of national statistical systems.

Repeated calls have been made for a common framework that combines a general system for organizing and systematizing the analysis of observed differences with the flexibility to handle specific situations.

The framework developed in this document proposes definitions for statistical reconciliation and statistical discrepancy that make it possible to start tackling the vicissitudes of MDG indicators from a general to a more specific level. The ability to categorize observed differences into true and false statistical discrepancies facilitates the stipulation of reconciliation measures specific to the type of information needed for producing MDG indicators.

This document illustrates the situation in the region for selected indicators, analysing the possible causes of discrepancies as a preliminary exercise that should be followed by a joint, in-depth consultation with the relevant stakeholders.

The proposed methodology and categories will help in defining a plan of action at both national and international levels to achieve the necessary statistical reconciliation in MDG indicators.

Bibliography

- Antigua and Barbuda Millennium Development Goals National Task Force (2009), *Antigua and Barbuda Millennium Development Goals report 2009*, St John's, December.
- Bolivarian Republic of Venezuela, Government of (2010), *Cumpliendo las metas del Milenio 2010*, Caracas.
- Chile, Government of (2010), *Objetivos de Desarrollo del Milenio. Tercer informe del Gobierno de Chile*, Santiago, Chile.
- Cuba, Government of (2010), *Cuba. Objetivos de Desarrollo del Milenio. Tercer informe 2010*, Havana.
- DNP (National Planning Department) (2010), *República de Colombia. Los Objetivos de Desarrollo del Milenio. II informe de seguimiento 2008*, Bogota.
- Ecuador, Government of (2007), *II Informe nacional de los Objetivos de Desarrollo del Milenio. Ecuador 2007*, Quito.
- El Salvador, Government of (2009), *El Salvador. Segundo informe de país. Sin excusas... Alcancemos los Objetivos de Desarrollo del Milenio en el 2015. Bases para el plan de cumplimiento*, San Salvador.
- Guyana, Government of (2007), *Guyana Millennium Development Goals 2007*, Georgetown.
- Haiti, Government of (2004), *Une vision commune du développement humain durable. Rapport national sur les objectifs du millénaire pour le développement*, Port-au-Prince.
- ILO (International Labour Organization) (2009), Guide to the new Millennium Development Goals employment indicator, including the full set of decent work indicators, Geneva, June.
- INEI (National Institute of Statistics and Informatics) (2010), Perú: evolución de los indicadores de los Objetivos de Desarrollo del Milenio al 2009, Lima.
- IPEA (Institute of Applied Economic Research) (2010), Brasil. Objetivos de Desenvolvimento do Milênio. Relatório nacional de acompanhamento, Brasília.
- Mexico, Government of (2011), Los Objetivos de Desarrollo en México. Informe de avances 2010, Mexico City.
- Ministry of Economic Affairs, Planning and Development (2010), República Dominicana. Objetivos de Desarrollo del Milenio. Informe de seguimiento 2010, Santo Domingo.
- Ministry of National Development (2005), First Millennium Development Goals report. Belize 2004, Belmopan.
- Ministry of National Planning and Economic Policy (2010), Costa Rica: Objetivos de Desarrollo del Milenio. II informe país, San José.
- National Council for the Coordination of Social Policies, Office of the President (2010), República Argentina. Objetivos de Desarrollo del Milenio. Rendición de cuentas 2010, Buenos Aires.
- _____ (2007), República Argentina. Objetivos de Desarrollo del Milenio. Metadata. Adaptación Argentina 2007, Buenos Aires.

- National Council on Social Policies (2010), *Objetivos de Desarrollo del Milenio. Addendum al informe país Uruguay 2009. Una mirada a la desigualdad. Buenas prácticas para el logro de los ODM*, Montevideo, November.
- _____ (2009), *Objetivos de Desarrollo del Milenio. Uruguay 2009. Informe país*, Montevideo.
- National Statistical Office (2009), *Cuba en cifras. Objetivos de Desarrollo del Milenio*, Havana.
- OECS/UNDP (Organisation of Eastern Caribbean States/United Nations Development Programme) (2008a), “British Virgin Islands Millennium Development Goals: a plan of action for localising and achieving the Millennium Development Goals (MDGs)”, MDG Series, vol. 5.
- _____ (2008b), “Saint Lucia: a plan of action for localising and achieving the Millennium Development Goals (MDGs)”, MDG Series, vol. 4.
- _____ (2006a), “Dominica: a plan of action for localizing and achieving the Millennium Development Goals (MDGs)”, MDG Series, vol. 2.
- _____ (2006b), “Saint Kitts and Nevis: a plan of action for localising and achieving the Millennium Development Goals (MDGs)”, MDG Series, vol. 3.
- PIOJ (Planning Institute of Jamaica) (2009), *National report of Jamaica on Millennium Development Goals for the UN Economic and Social Council annual ministerial review*, Kingston, July.
- Planning and Programming Secretary of the Presidency, Guatemala (2010), *Tercer informe de avances en el cumplimiento de los Objetivos de Desarrollo del Milenio*, Guatemala.
- PLOS/ABS (Ministry of Planning and Development Cooperation/General Bureau of Statistics) (2010), *Suriname MDG progress report 2009*, Paramaribo.
- Quiroga, Rayén, Stockins Pauline, Azócar Irene (2010), *Vacios y discrepancias estadísticas en los indicadores ODM: hacia una estrategia regional de conciliación estadística para América latina y el Caribe*, serie estudios estadísticos y prospectivos, No. 70 (LC/L.3176-P), Santiago de Chile, Comisión Económica para América Latina.
- Statistical Office, Department of Economic Planning and Statistics (2006), *Turks and Caicos Islands. MDGs status report, 2005...Five years after*.
- UDAPE (Economic and Social Policy Analysis Unit) (2010), *Sexto informe de progreso de los Objetivos de Desarrollo del Milenio en Bolivia*, La Paz.
- UIS (UNESCO Institute for Statistics) (2009), “Indicadores de educación. Especificaciones técnicas” [online] <http://www.uis.unesco.org/Library/Documents/eiguide09-es.pdf>.
- UNDP/ECLAC (United Nations Development Programme/ Economic Commission for Latin America and the Caribbean) (2007), *Comprehensive report to inform the presentation by the Government of Barbados to the annual ministerial review of the United Nations Economic and Social Council on Barbados’ progress towards achieving the Millennium Development Goals and other internationally agreed development goals* [online] http://www.un.org/en/ecosoc/docs/pdfs/barbados_national_rpt.pdf.
- UNICEF/IGME (United Nations Children’s Fund/Inter-Agency Group for Child Mortality Estimation) (2012), *Levels and trends in child mortality. Report 2011-2012*, New York [online] <http://www.childmortality.org>.
- United Nations (2011a), *United Nations Millennium Development Goals indicators database* [online] <http://mdgs.un.org/unsd/mdg/Default.aspx>.
- _____ (2011b), “IAEG Countries”, *United Nations Millennium Development Goals indicators database* [online] <http://mdgs.un.org/unsd/mdg/Default.aspx>.
- _____ (2003), *Indicators for monitoring the Millennium Development Goals. Definitions, rationale, concepts and sources*, New York, United Nations publication, Sales No. E.03.XVII.18.
- United Nations system in Honduras (2010), *Objetivos de Desarrollo del Milenio, Honduras 2010. Tercer informe de país*, Tegucigalpa.
- United Nations system in Nicaragua (2004), *Objetivos de Desarrollo del Milenio y metas nacionales de Nicaragua. Escenario de inversión social para alcanzar los Objetivos de Desarrollo del Milenio y las metas nacionales de desarrollo en Nicaragua 2000-2015*, Managua.
- United Nations system in Panama/Panama Government of (2009), *Objetivos de Desarrollo del Milenio. III Informe de Panamá*, Panama.
- United Nations system in Paraguay (2005), *Objetivos de Desarrollo del Milenio. Informe de Paraguay*, Asunción.
- Wilmoth, J. and others (2010), “Levels and trends of maternal mortality in the world: the development of new estimates by the United Nations” [online] http://www.who.int/reproductivehealth/publications/monitoring/MMR_technical_report.pdf.

**Series:****Statistics****Issues published****A complete list as well as pdf files are available at****www.eclac.org/publicaciones**

81. Types of discrepancy in Millennium Development Goal indicator values and measures for statistical reconciliation. Overall framework and implementation in selected thematic areas and indicators (LC/L.3686), Daniel Taccari, Pauline Stockins, April 2014.
80. Buenas prácticas en el monitoreo y reporte de los Objetivos de Desarrollo del Milenio: Lecciones nacionales desde América Latina (LC/L.3564), Pauline Stockins, diciembre de 2012.
79. La medición del bienestar a través de indicadores subjetivos: Una revisión, Pablo Villatoro, LC/L.3515, julio de 2012.
78. La viabilidad de erradicar la pobreza: Un examen conceptual y metodológico (LC/L.3463), marzo de 2012.
77. Elementos para una metodología de medición del sector informal en las cuentas nacionales, Documento de Trabajo, (LC/L.3462), marzo de 2012.
76. Contribución al crecimiento económico de las tecnologías de la información y las comunicaciones y de la productividad en la Argentina, el Brasil, Chile y México (LC/L.3439), Claudio Aravena, Carolina Cavada y Nanno Mulder, enero de 2012.
75. Servicios de Intermediación Financiera Medidos Indirectamente en el SCN 2008, Grupo de trabajo en Cuentas Nacionales, (LC/L.3398), octubre de 2011.
74. Propuesta de indicadores complementarios para el monitoreo de los ODM: Indicadores de acceso a las Tecnologías de la Información y las Comunicaciones (LC/L.3371), Mariana Balboni, César Cristancho, Pauline Stockins y Daniel Taccari, septiembre de 2011.
73. Escalas de equivalencia en los países de América Latina (LC/L.3325-P), Haydee Alonzo, Xavier Mancero, abril de 2011.

STATISTICS

81

STATISTICS

STATISTICS



ECONOMIC COMMISSION FOR LATIN AMERICA AND THE CARIBBEAN
COMISIÓN ECONÓMICA PARA AMÉRICA LATINA Y EL CARIBE
www.eclac.org