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**REGIONAL INITIATIVE FOR THE DEVELOPMENT OF A MECHANISM TO MONITOR  
THE IMPLEMENTATION OF THE MILLENNIUM DEVELOPMENT GOALS  
RELATED TO WATER AND SANITATION IN THE ARAB REGION (MDG+)****Summary**

According to the most recent report released by the WHO/UNICEF Joint Monitoring Programme (JMP) in March 2010, out of an Arab population estimated at 345 million people, approximately 57 million people (17 per cent) do not have access to improved drinking water sources, and 76 million people (22 per cent) do not have access to improved sanitation facilities. This shows that there are still major challenges and constraints that are impeding progress towards achieving Target 7c of Goal 7 of the Millennium Development Goal (MDGs), which seeks to “halve, by 2015, the proportion of people without access to safe drinking water and basic sanitation”. It also exposes the need to develop additional region-specific indicators that can more appropriately reflect the actual quality and reliability of water supply and sanitation (WSS) services in the different Arab countries in order to secure a better understanding of the issues that impede achievement of that Goal.

In order to address this challenge, the Arab Ministerial Water Council (AMWC) issued a resolution during its second ministerial session in Cairo in July 2010 that requested ESCWA to prepare a set of harmonized WSS indicators for the Arab region, in consultation with the World Health Organization (WHO), Arab Countries Water Utilities Association (ACWUA), Centre for Environment and Development for the Arab Region and Europe (CEDARE), Arab Water Council (AWC) and Arab Network for Environment and Development (RAED); and to prepare biennial progress reports on those indicators.

This report reviews the limitations of the current JMP indicators and proposes a set of additional WSS indicators for the Arab region, as part of an MDG plus (MDG+) initiative. It is suggested that these indicators are more representative for clarifying the access to WSS services in the region, compared to those adopted by the JMP, given that they also examine the quality and level of service provided. The proposed water supply indicators can be broadly categorized into those that quantify the quality of services provided, and those that relate to the financial burden associated with the cost of accessing those services. The proposed sanitation indicators can be classified into those related to environmental protection and health associated with wastewater use and reuse, and those that reflect the financial burden associated with connection to a sewerage system.

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## Introduction

1. The United Nations General Assembly renewed its commitment to improve the lives of the poor and protect the environment by issuing the Millennium Declaration on 8 September 2000 and articulating the Millennium Development Goals (MDGs). This commitment was reiterated at the United Nations Summit on the Millennium Development Goals (MDG Summit) that was convened from 20 to 22 September 2010 in New York. The year 2015 is set as the deadline for the achievement of the eight MDGs and their associated targets. Within that context, MDG 7 aims to ensure environmental sustainability and includes two targets and three indicators related to the water sector (see the table below). Specifically, Target 7c addresses the issue of access to safe drinking water and basic sanitation.

### MDG 7 TARGETS AND INDICATORS RELATED TO WATER SUPPLY AND SANITATION

MDG 7: Ensuring environmental sustainability		
Target 7a	Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	
	Indicator 7.5	Proportion of total water resources used
Target 7c	Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	
	Indicator 7.8	Proportion of population using an improved drinking water source
	Indicator 7.9	Proportion of population using an improved sanitation facility

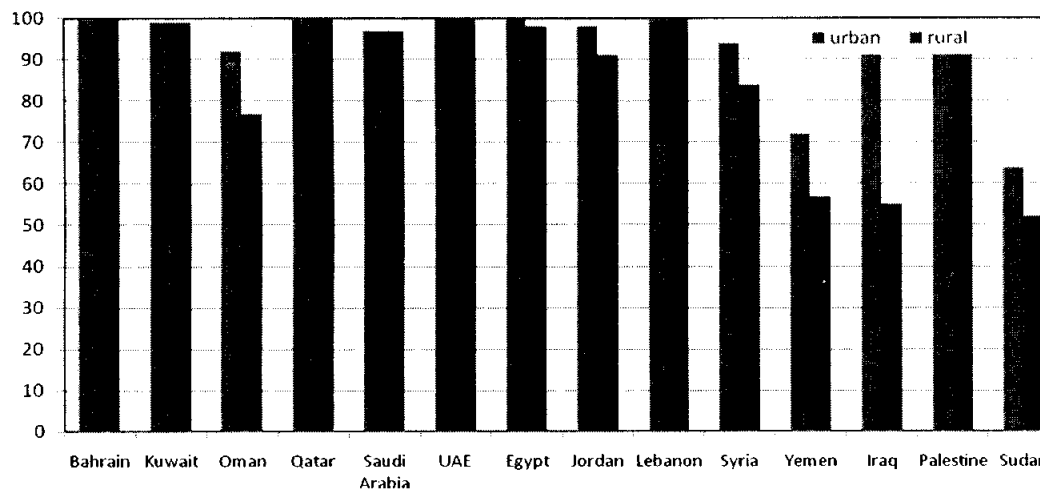
2. There are many agencies involved in monitoring progress towards achieving the MDG targets on water supply and sanitation (WSS). At a global level, the United Nations Statistics Division is responsible for tracking and reporting on progress related to all MDGs. The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) have the major responsibility for providing the United Nations Statistics Division with relevant international statistics and analysis of indicators related to water and sanitation issues. This data is derived from the Joint Monitoring Programme (JMP), which was established in 1990 to conduct a global assessment of the water and sanitation situation. Since 2000, JMP has relied exclusively on information collected through nationally representative household surveys, particularly the Demographic and Health Surveys (DHS), UNICEF's Multiple Indicator Cluster Surveys (MICS), and national demographic censuses. At the national level, MDG monitoring is undertaken by the United Nations Development Programme (UNDP), particularly during the preparation of national monitoring reports. While the MDG country reports contribute to statistical monitoring, their main purpose is to promote advocacy, public information and mobilization in support of MDGs. At the regional level, the League of Arab States (LAS) and ESCWA prepare regional reports on MDGs. Consequently, the Arab Ministerial Water Council requested ESCWA to report to its first and second ministerial sessions on progress in achieving the MDG 7 targets related to water supply and sanitation. This served as the basis for requesting ESCWA to collaborate with other regional organization in order to establish a regional mechanism for improved monitoring and reporting on water supply and sanitation in the region.

3. JMP released its most recent biennial report in March 2010, which is based on 2008 data. The report estimates service coverage by showing the proportion of the population that remains without access to improved drinking water sources and improved sanitation facilities.<sup>1</sup> An analysis of the data reveals that for the estimated 345 million people who reside in the 22 countries of the Arab region, approximately 57 million people (17 per cent) remain without access to improved drinking water sources, and 76 million people (22 per cent) remain without access to improved sanitation facilities. However, compared to the baseline year 1990, the number of people in Arab countries with access to basic sanitation had increased by 87.8 million and the number of those with access to adequate water supply had risen by 81.7 million in 2008. Improvements were experienced in almost every country in the Arab region.

<sup>1</sup> WHO-UNICEF Joint Monitoring Programme (JMP), *Progress on Sanitation and Drinking Water-2010 Update* (March 2010).

4. Within the ESCWA region, Egypt, Iraq, Jordan, Oman, Palestine, Saudi Arabia, Sudan, Syrian Arab Republic and Yemen have not yet reached full coverage of their population with respect to access to adequate water supply (see figure I below). The situation is particularly critical for the rural populations of these ESCWA members, especially Iraq, Sudan and Yemen, where more than 40 per cent of the population still lacks access to adequate water supplies.

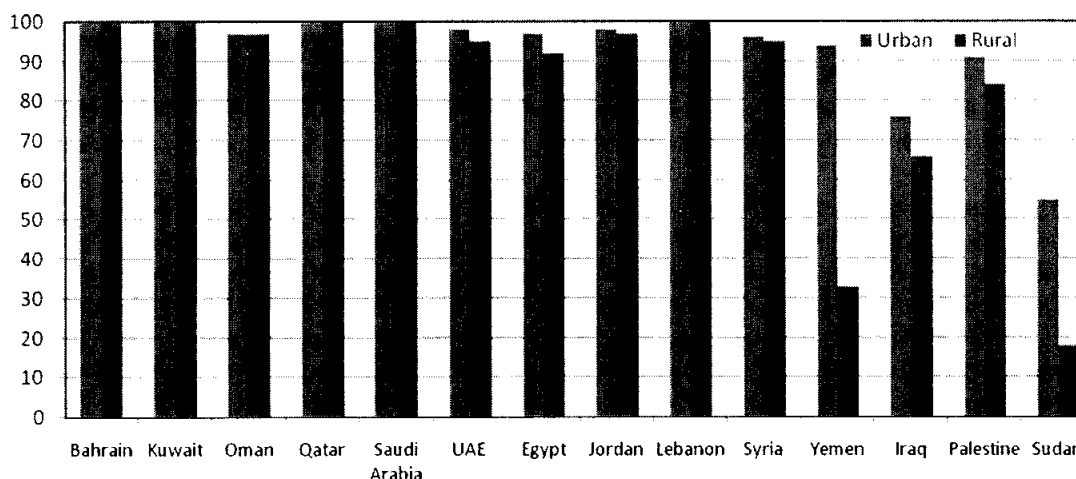
**Figure I. Water supply coverage in the ESCWA region**



Source: ESCWA, based on WHO-UNICEF Joint Monitoring Programme, *Progress on Sanitation and Drinking Water-2010 Update* (March 2010).

5. The disparity between urban and rural coverage is even wider for access to basic sanitation. In the Arab region, 88 per cent of the urban population has access to improved sanitation facilities compared to only 64 per cent of the rural population. As shown in figure II, Iraq, Sudan and Yemen suffer from large gaps in the provision of basic sanitation services for a significant proportion of their rural population. The sizable disparity highlights the need to focus on rural sanitation, while maintaining and increasing urban access. However, some countries witnessed significant improvements in sanitation coverage compared to the previous 2008 JMP report. Egypt, for example, saw a substantial decrease in the number of people without access to improved sanitation from more than 25 million people in 2006 to fewer than 5 million in 2008.

**Figure II. Sanitation coverage in the ESCWA region**



Source: ESCWA, based on WHO-UNICEF Joint Monitoring Programme, *Progress on Sanitation and Drinking Water-2010 Update* (March 2010).

## I. JUSTIFICATION AND MANDATE

6. While the latest JMP report estimates that 83 per cent of the population in the Arab region has access to improved water sources, this does not mean that 83 per cent of the total population has regular and continuous access to this service or that the quality of water provided is adequate for drinking. The definition of the indicators related to the current MDG 7 targets relate primarily to access to infrastructure. They do not accurately represent the actual quality and reliability of water supply and sanitation services in the various countries of the region.

7. Owing to the numerous reports at the global, regional and national levels that discuss progress in achieving the MDG water and sanitation targets, there is a need to develop indicators that more appropriately reflect access to water supply and sanitation services, including the quality of those services, based on regional-specific conditions and constraints. These include water scarcity, intermittent electricity supply, reliance on desalination, as well as the impact of on-going conflicts and crises affecting the region. The variations in the definitions used to report on the MDG 7 indicators and the multiplicity of reports, which are sometimes contradictory or inaccurate, have resulted in the need to identify and adopt indicators and standards that are unified, appropriate and specific to the Arab region.

8. In the light of this, the Arab Ministerial Water Council (AMWC) introduced, during its first session (Algiers, 29-30 June 2009), a resolution that called on ESCWA "to set up a mechanism for cooperation and coordination with the Arab Countries Water Utilities Association (ACWUA), Arab Water Council (AWC), Arab Network for Environment and Development (RAED), and Centre for Environment and Development in the Arab Region and Europe (CEDARE), to prepare an in-depth report on progress made towards achieving MDG on water and sanitation taking into consideration quality of service provided, and based on harmonized indicators and standards for evaluation and comparison, and forward this report to the Technical Scientific and Advisory Committee in its coming meeting". Subsequently, and based on the recommendation of the Technical Committee, the Executive Bureau of the AMWC issued an amendment to the above decision during its second session (Cairo, 27-28 January 2010), calling on ESCWA to prepare, after consultation with WHO and the abovementioned organizations, a set of harmonized water and sanitation indicators and standards for the Arab region and to prepare biennial progress reports towards achieving the MDG on water and sanitation (Target 7c).

9. The AMWC, during its second ministerial session convened at the LAS headquarters on 1 July 2010, reiterated its request and issued another resolution with the following points:

(a) To call upon ESCWA, and in coordination with ACWUA, CEDARE, WHO, AWC and RAED, to prepare a unified template of MDG indicators (basic and additional) and standards for water supply and sanitation, and to forward it to the Technical Secretariat of the Council;

(b) To request the Technical Secretariat of the Council to circulate the unified template of MDG indicators for water supply and sanitation among Arab countries and regional and international organizations, and solicit opinions; to invite Arab countries and Arab, regional and international organizations to comment on the unified template of MDG indicators and submit their reviews to ESCWA; and to invite ESCWA to submit to the Technical Secretariat of the Council the final version of the template of MDG indicators for water supply and sanitation after inclusion of comments from Arab countries and regional and international organizations, and to present it for discussion during the upcoming fourth meeting of the Technical Scientific and Advisory Committee of the Council;

(c) To invite those Arab countries that have not yet submitted their progress report on the attainment of the MDG on water supply and sanitation, to submit their reports to the Technical Secretariat for presentation during the fourth meeting of the Technical Scientific and Advisory Committee of the Council.

## II. CONSULTATION WITH PARTNERS

### A. CONSULTATIONS WITH COUNTERPARTS

10. In addition to several discussions with the LAS Technical Secretariat of the AMWC, ESCWA held two meetings with ACWUA and the ESCWA/ACWUA GTZ technical advisor in Amman in July and November 2009, respectively, aimed at discussing the contribution by ACWUA to this regional initiative. It was agreed that ACWUA was committed to supporting a regional mechanisms for improved formulation and monitoring of WSS targets. This included contributing a draft list of indicators for consideration and discussing possible arrangements by which ACWUA could consult with its membership to gather data related to these indicators. It was suggested that the Association could eventually serve as a repository and rapporteur for this type of data and analysis if primary information on an agreed set of water supply and sanitation indicators were to be collected from ACWUA members.

11. Following initial communication, ESCWA met with RAED in Beirut in December 2009 to discuss its contribution to the regional mechanism. RAED reconfirmed its interest in contributing to the initiative, signalling that it could provide demand-side assessments regarding the quality of water supply and sanitation services delivered to consumers in the region. It was proposed that this information could be collected from its network of member organizations and counterparts operating in all but three Arab countries. The information gathered could be derived from small surveys and the collection of vignettes regarding consumer satisfaction with these services. They could be collected and elaborated through consultative processes fostered at the national and local levels.

12. ESCWA met with a representative from the Eastern Mediterranean Regional Office of WHO (WHO/EMRO) in November 2009 in Beirut, following discussion of this initiative with the WHO representative to the Regional Coordination Mechanism (RCM) meeting that was held at ESCWA (Beirut, 3-4 November 2009). WHO/EMRO indicated its support for this initiative and its ability to contribute quality-based information on water supply indicators related to human health. Additionally, WHO/EMRO confirmed that it could coordinate with the Centre for Environmental Health Activities (WHO/CEHA) office in Amman to support this initiative. Moreover, WHO indicated that it could offer insight regarding the data compiled and disseminated on the MDG 7 targets through JMP, which it implements with UNICEF.

13. Prior to the second meeting of the Technical Scientific and Advisory Committee of the AMWC, and on the basis of the modified resolution of its Executive Bureau, ESCWA coordinated with all partners on the identification of the additional indicators to be included in the newly titled MDG plus initiative (MDG+). In that regard, a roundtable meeting of representatives of all five mandated organizations was organized at CEDARE (Cairo, 30 June 2010), with the aim of reaching consensus and finalizing the proposed list of additional indicators drafted by ESCWA. In response to recommendations by the Technical Committee, which was later translated into a Ministerial Council resolution (1 July 2010), it was agreed during the roundtable meeting that ESCWA would take the lead in the preparation of the "unified template" and submit the draft to all partners by mid-October 2010 for review and comments, before submitting a final draft of the template to the LAS Technical Secretariat of the Ministerial Council, in line with the Council's resolution. The draft template was prepared and submitted to the partner organizations by ESCWA on 12 October 2010, and was subsequently submitted to the LAS Technical Secretariat of the AMWC on 25 October 2010. Based on the comments that ESCWA is set to receive from the countries, the final template will be presented to the Technical Committee during its scheduled meeting in February 2011.

### B. CONSULTATIONS WITH REGIONAL PARTNERS AND STAKEHOLDERS

14. In addition to initiating coordination with regional partners on the establishment of a mechanism for formulating and monitoring MDG+ indicators on water and sanitation, ESCWA continued its work on monitoring and reporting on the core MDG targets at the regional level. This was conducted through the following:

(a) The RCM Thematic Working Group on MDGs, which is led by ESCWA and coordinates follow-up and reporting on MDGs among United Nations organizations in consultation with the LAS. This included the organization of the First Meeting of the RCM Thematic Working Group on MDGs in the Arab Region (Beirut, 23 July 2009). The Meeting resulted in a timetable and guidelines for issuing the next LAS-UN Joint Regional Report on MDGs in the Arab Region, 2010;<sup>2</sup>

(b) The Expert Group Meeting on the LAS-UN Joint Regional Report on MDGs in the Arab Region, 2010 (Beirut, 9-11 December 2009), during which ESCWA presented the draft chapter on MDG 7, which it prepared in collaboration with UNEP/ROWA. The chapter incorporates inputs contributed by UNICEF, United Nations Population Fund (UNFPA), United Nations Human Settlements Programme (UN-HABITAT), UNEP/ROWA and ESCWA. During the presentation, ESCWA informed representatives from member countries and regional organizations of the AMCW resolution, and shared with them the preliminary list of MDG+ indicators. The approach was well-received by participants, particularly representatives from countries suffering from acute water scarcity and conflict.

### III. BASIC JMP INDICATORS FOR WATER SUPPLY AND SANITATION

15. MDG 7c calls for reducing by half, by 2015, the proportion of people without sustainable access to safe drinking water supply and basic sanitation. Given that definitions of “access” can vary widely within and among countries and regions, and that JMP is mandated to report at the global level and across time, it has established a set of categories for “improved” and “unimproved” water sources and sanitation facilities that are used to analyse the national data on which its trends and estimates are based. An improved drinking-water source is defined as one that, by nature of its construction or through active intervention, is protected from outside contamination, in particular from contamination with faecal matter. An improved sanitation facility is defined as one that hygienically separates human excreta from human contact and “which are more likely to prevent human contact with human excreta than unimproved facilities”. JMP uses the following classification to differentiate between “improved” and “unimproved” water supply sources and sanitation facilities:<sup>3</sup>

(a) “Improved” sources of drinking water consist of the following:

- (i) House Connection;
- (ii) Standpipe;
- (iii) Protected water source includes:
  - a. Tubewell;
  - b. Protected dug well;
  - c. Protected spring;
  - d. Protected Rainwater Collection;

(b) “Unimproved” sources of drinking water consist of the following:

- (i) Unprotected water source includes:
  - a. Unprotected spring;
  - b. Unprotected dug well;
  - c. Surface water;

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<sup>2</sup> The LAS-UN Joint Regional Report on MDGs was finalized in July 2010 and presented at the MDG Summit (New York, September 2010).

<sup>3</sup> WHO/UNICEF Joint Monitoring Programme (JMP), “Definitions and methods”, which is available at: [www.wssinfo.org/definitions-methods/watsan-categories/](http://www.wssinfo.org/definitions-methods/watsan-categories/).

- (ii) Tanker water;
- (iii) Bottled water;<sup>4</sup>

(c) “Improved” sanitation facilities consist of the following:

- (i) Sewer;
- (ii) Septic tank;
- (iii) Cesspit;
- (iv) Facilities that separate human excreta from human contact:
  - a. Flush toilet;
  - b. Flush/pour flush to pit latrine;
  - c. Pit latrine with slab;
  - d. Ventilated improved pit latrine (VIP);
  - e. Composting toilet;

(d) “Unimproved” sanitation facilities consist of the following:

- (i) Improved but shared facilities;
- (ii) Facilities that fail to separate human excreta from human contact, which consist of the following:
  - a. Flush/pour flush to elsewhere;
  - b. Pit latrine without slab;
  - c. Open pit;
  - d. Bucket latrines;
  - e. Hanging toilet or hanging latrine;
  - f. Open defecation.

#### **IV. LIMITATIONS OF THE JMP INDICATORS FOR WATER SUPPLY AND SANITATION**

##### **A. GENERAL LIMITATIONS**

16. The JMP indicators do not consider water quantity or the proximity (distance) to a water source, despite the definition by WHO of basic access to water as the availability of at least 20 litres of drinking water per person per day within a distance of not more than 1 km of the dwelling, corresponding to a maximum water hauling round trip of 30 minutes.<sup>5</sup>

17. Moreover, the JMP indicators do not specify the quality of water needed for safe drinking water and hygiene. For instance, a household connection classified as an “improved technology” can still supply water of poor quality. The United Nations Millennium Project Task Force on Water Supply and Sanitation has interpreted Target 7c by stating that “a person is said to have access to improved water supply if the person has access to sufficient drinking water of acceptable quality as well as sufficient quantity of water for hygienic purposes”.<sup>6</sup> The data collected and presented in the JMP report is inconsistent with this definition.

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<sup>4</sup> Bottled water is considered an improved source of drinking-water only when there is a secondary source of improved water for other uses, such as personal hygiene and cooking.

<sup>5</sup> More information is available at: [www.who.int/water\\_sanitation\\_health/mdg1/en/index.html](http://www.who.int/water_sanitation_health/mdg1/en/index.html).

<sup>6</sup> Millennium Project Interim Report of Task Force 7 on Water and Sanitation (2004), which is available at: [www.unmillenniumproject.org/documents/tf7interim.pdf](http://www.unmillenniumproject.org/documents/tf7interim.pdf).



18. The MDG 7c indicators do not consider the continuity of water supply or account for water rationing. Intermittent services to households or broken standpipes are not normally counted in household surveys and, therefore, are not reflected in the indicator and the resulting datasets.

19. Furthermore, the MDG 7 indicators do not address the affordability or cost of water as a fraction of income, even though the Millennium Declaration aims to reduce by half the proportion of people unable to reach or afford safe water.<sup>7</sup>

20. They also fail to address the effect of tariff structure on water supply and sanitation, which impacts the affordability of these services for the poor, the cost of non-revenue water, as well as the sustainability of both water utilities and drinking water supplies.

21. The MDG 7 indicators do not assess whether wastewater and sewage are treated before their safe disposal. The unsafe and unregulated disposal of domestic wastewater pollutes the environment and could lead to the contamination of drinking water sources.

22. Finally, the indicators do not consider the wastewater treatment and reuse as a potential water supply source that could liberate other water resources for drinking water purposes. In addition to reducing the pressure on conventional water supplies and the financial benefits accruing from savings on water bills or from additional income generated, the treatment and safe reuse of wastewater decreases the risk of environmental pollution.

## B. LIMITATIONS OF THE JMP INDICATORS IN THE ESCWA REGION<sup>8</sup>

### 1. *Water availability and consumption of bottled water*

23. The ESCWA region faces severe water shortages that are exacerbated by several factors, notably the rapid rate of population growth and the expanding aridity rates owing to climate variability, climate change and desertification. This has increased the frequency of service interruptions, which have become the norm in some countries of the region. Bottled water consumption is concurrently an emerging trend and, despite the availability of piped water in many ESCWA member countries, there is an increasing demand for bottled water in the region. This could owe to perceptions that tap water quality from public networks is unfit for consumption, or to the reliability that bottled water provides as an alternative to the frequent disruptions experienced when using water distribution networks.

### 2. *Water quality*

24. The deterioration of water quality has become a critical issue across the ESCWA region. Untreated sewage, industrial effluents and agricultural runoff are the main sources of surface and groundwater pollution. The indiscriminate dumping of untreated liquid and solid waste into nearby water bodies has, in some countries of the region, resulted in increasing the frequency of outbreaks of waterborne disease, such as typhoid, paratyphoid, dysentery and cholera. Another issue is the excessive abstraction of groundwater leading to seawater intrusion into coastal aquifers of many countries of the region.

<sup>7</sup> See [www.un.org/millennium/declaration/ares552e.htm](http://www.un.org/millennium/declaration/ares552e.htm).

<sup>8</sup> For additional information, see ESCWA, "Sustainable Water Supply and Sanitation for All: Regional Assessment Report on the Status and Achievements of ESCWA Member Countries Towards Improved Water Supply and Sanitation" (E/ESCWA/SDPD/2009/1).

### 3. *Water tariffs and unaccounted for water (non-revenue water)*

25. Another significant water supply issue in the region is water lost through leaky pipes into city streets and sewers or stemming from inaccurate metering and faulty billing. Such losses owe to inadequate maintenance of pipes, which in turn arise from the institutional and financial weakness of the water sector. Inadequate and poorly developed tariff structures are among the main causes of the poor financial situation of public water and sanitation utilities. In many ESCWA member countries, there is an absence of regular tariff reviews and of adequate inclusion of cost items in tariff calculations. Current water tariffs in the ESCWA region are substantially lower than the water production costs, and do not encourage water conservation or ensure the economic viability of the utilities that provide these services.

### 4. *Wastewater treatment*

26. Many countries in the region have just started to invest in wastewater treatment plants. However, in those countries that have existing facilities, half of the wastewater treatment plants are either not functioning properly owing to a lack of maintenance, or are operating in overcapacity conditions. In some ESCWA member countries, municipal wastewater is discharged into agricultural drains from treatment plant outfalls, raw sewage outfalls or vacuum trucks. Drain water and freshwater is sometimes mixed to increase overall water-use efficiency, and many farmers use drain water to supplement their irrigation supplies. Both these practices impair water quality for downstream users and drinking water utilities. Groundwater pollution from cesspits and drain water inflows also pose a threat to households that rely on shallow wells and hand pumps for their supply of drinking water.

### 5. *Wastewater reuse*

27. Practically all the countries of the region reuse some of their wastewater. In some countries, especially member countries of the Gulf Cooperation Council (GCC), a substantial share of the wastewater supplied for municipal use is reused in agriculture, horticulture, public parks and golf courses after adequate treatment. However, in some other countries, the share of reused wastewater is still low given the inadequate level of wastewater collection and treatment. Reuse of wastewater that is adequately treated reduces the demand on freshwater resources, reduces the volume of wastewater discharged to the environment, reduces the cost of water treatment of uncontaminated domestic water supply sources, and increases the fertility of soil and irrigation water availability for crop production.

## **V. PROPOSED MDG+ INDICATORS**

28. A preliminary set of indicators is proposed that is based on input received from the AWC, ACWUA, RAED, CEDARE and WHO. It is suggested that these indicators, termed MDG+ indicators, are more representative in determining access to water and sanitation services, compared to those currently adopted in MDG 7 (indicators 7.8 and 7.9). The preliminary criteria used for identifying these indicators are as follows:

- (a) The indicators should reflect directly, or by proxy, the conditions and constraints faced in the Arab region;
- (b) The number should be limited to a core set of indicators;
- (c) Differentiation should remain between water supply and sanitation indicators;
- (d) The indicators should be easy to understand;
- (e) The data needed to monitor these indicators should be available and accessible or able to be collected and accessed in a reasonable manner;

(f) Suppliers, consumers and the public at large should be interested in the information that would be presented through analysis of data associated with these indicators. Such analysis should contribute to the planning process to advance the water and sanitation services.

29. Based on the abovementioned criteria, the proposed MDG+ water supply indicators are as follows:

- (a) Water consumption;
- (b) Continuity of supply;
- (c) Water quality;
- (d) Distance to source;
- (e) Tariff structure;
- (f) Affordability.

30. The proposed MDG+ sanitation indicators are as follows:

- (a) Treated quantity;
- (b) Treatment type;
- (c) Reuse utilization;
- (d) Reuse type;
- (e) Tariff structure;
- (f) Affordability.

#### A. MDG+ WATER SUPPLY INDICATORS

31. Set forth below is a brief definition of each of the proposed MDG+ water supply indicators and a justification for their use. The indicators can be broadly categorized into those that clarify or quantify the quality of services, namely, indicators (a) through (d) above; and those additional ones that relate to the financial burden associated with cost of acquiring those services, namely, indicators (e) and (f) above. The MDG+ indicators relate to and complement JMP basic water supply indicators pertaining to improved, unimproved or bottled water sources (which is considered improved only if another improved water source is used for the other domestic uses). They are essentially the same for both urban and rural population, except for one indicator-distance to source (see indicator 4 below).

(a) *Water consumption*: The average amount of water consumed daily by each member of the population (litres per person per day, lpd) using a household connection or using bottled water with another water source for domestic use. This includes all water used for drinking, cooking, bathing, personal and household hygiene and sanitation.

Justification: MDG 7c calls for reducing by half the proportion of people without sustainable access to safe drinking water and basic sanitation. The UN Millennium Project Task Force on Water Supply and Sanitation has interpreted Target 7c by stating that “a person is said to have access to improved water supply if the person has access to sufficient drinking water of acceptable quality as well as sufficient quantity of water for hygienic purpose, where sufficient is taken to mean at least 20 litres per capita/per day”.<sup>9</sup> Consequently, this indicator measures the quantity of all water consumed by a person for drinking and hygienic purposes measured against a minimum target of 20 litres per capita per day.

(b) *Continuity of supply*: The proportion of population using water from a household connection or stand pipe who receive their water supply either daily, 3-4 days weekly, once weekly, biweekly or less than biweekly.

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<sup>9</sup> See [www.who.int/water\\_sanitation\\_health/dwq/gdwq3rev/en/](http://www.who.int/water_sanitation_health/dwq/gdwq3rev/en/).

**Justification:** The JMP indicators monitor the use of “improved” drinking-water sources as a proxy for sustainable access to safe and reliable water supply. These “improved sources”, however, can be subject to intermittent and unreliable service and they do not consider the impact of rationing on water availability. In urban areas, while JMP data show that a large majority of populations have access to water utility services, the reliability of these services is usually very low as evident by the household water storage facilities that are used to augment water supply. Frequent pressure variation in the supplying networks, resulting from intermittent supply regimes, could also induce leakage into the networks, thereby posing a contamination threat to consumers.

(c) *Water quality:* The proportion of population using water from a house connection or stand pipe that has been disinfected at the source.

**Justification:** JMP states that “the number of people using safe water is likely to be lower than the number of people using a protected source”. Existing surveys do not provide information on the quality of water, either at the source or in households.<sup>10</sup> In rural areas, such protected water sources as shallow wells, springs and boreholes do not necessarily provide safe water even though they are classified as an “improved water source”. In many instances, the water is polluted by nearby pit latrines, open sewers or other sources of contamination. Faecal contamination of drinking water supplies is the main cause of diarrheal diseases, which accounts for approximately 80 per cent of morbidity/mortality in developing countries.<sup>11</sup> In urban areas, excessive abstraction of groundwater has increased salinity and reduced the overall quality of available water.

(d) *Distance to source:* The proportion of population who obtain their water from a stand pipe, protected water source or unprotected water source, and who are within a 1,000-metre roundtrip distance from the source in rural areas, or who spend 30 minutes or less to collect water in urban areas.

**Justification:** The United Nations Millennium Project Task Force on Water Supply and Sanitation has interpreted Target 7c by stating that “a person is said to have access to improved water supply if the person has access to sufficient drinking water of acceptable quality as well as sufficient quantity of water for hygienic purpose, where sufficient is taken to mean at least 20 litres per capita per day, and the source is no further than 1,000 meters from their home”.<sup>12</sup> While this definition is deemed adequate for rural areas, it does not apply to urban areas where the distance to a source is usually not a problem. The London School of Hygiene and Tropical Medicine (LSHTM) has developed a programme, under the auspices of the Water and Sanitation Collaborative Council (WSCC), for monitoring Vision 21 targets related to water and sanitary hygiene. Vision 21 suggests that if the time it takes to get drinking water and return (including queuing) is more than 30 minutes, then there is no access to drinking water.<sup>13</sup>

(e) *Tariff structure:* The proportion of population connected to a house network and billed either a flat rate (flat tariff) or a rate that increases with the amount of water consumed (increasing tariff).

**Justification:** A water tariff, or water rate, is the price customers pay to a public utility for receiving water services through a piped network. In addition to water itself which most often is provided as free of charge, these services include treatment, storage, transportation, metering and maintenance. Tariffs are normally introduced in order to recover all operation and maintenance costs for water production and distribution. Ideally, tariffs also discourage excessive use of water and thus promote water conservation. In some ESCWA

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<sup>10</sup> WHO-UNICEF Joint Monitoring Programme (JMP), “Meeting the MDG Drinking Water and Sanitation Target – A Mid-term Assessment of Progress” (2004), p. 23.

<sup>11</sup> See [www.searo.who.int/EN/Section23/Section1000\\_15436.htm](http://www.searo.who.int/EN/Section23/Section1000_15436.htm).

<sup>12</sup> See [www.who.int/water\\_sanitation\\_health/dwq/gdwq3rev/en/](http://www.who.int/water_sanitation_health/dwq/gdwq3rev/en/).

<sup>13</sup> Water Supply and Sanitation Collaborative Council, “Vision 21: A shared vision for hygiene, sanitation and water supply and a framework for action. Proceedings of the second water forum, The Hague, 17-22 March 2000”.

member countries, governments maintain water tariffs at a minimum or charge in lump sums, irrespective of the amount of water used. This subsidizes heavy water users and reduces the economic viability and sustainability of the utilities providing these services.

(f) *Affordability*: The financial burden associated with the cost of water in proportion to income. It is the monthly cost per capita for a water service as a percentage of the monthly per capita income.

Justification: The United Nations General Assembly has recently reaffirmed that access to water is a human right, and that basic needs for water and sanitation must be affordable for the poorest sections of society.<sup>14</sup> In developing countries, the poor are often not connected to the network and usually pay a higher share of their low income for lower quantities and often lower quality of water. Affordability of water charges for low-income households could become a significant issue in some ESCWA member countries where higher tariffs are introduced to offset the cost of operation and maintenance of water utilities or to invest in the rehabilitation of the broken infrastructure of the water and sanitation sector.

## B. MDG+ SANITATION INDICATORS

32. Set forth below is a brief definition of the proposed MDG+ sanitation indicators and justification for their use. The MDG+ sanitation indicators can be classified into those related to environmental protection and health associated with wastewater disposal and reuse, namely, indicators (a) through (d); and those that reflect the financial burden associated with connection to the sewerage system, namely, indicators (e) and (f). The MDG+ sanitation indicators are applicable only to improved facilities, specifically those connected to public sewers.

(a) *Treated quantity*: The proportion of the population who are connected to sewer networks with the collected wastewater receiving treatment prior to discharge to the environment without adverse effects on health or the ecosystem.

Justification: The increase in surface and groundwater contamination from untreated municipal wastes and agricultural and industrial effluents poses a serious threat to the quality and quantity of drinking water and has adverse effects on public health. In addition to poor water quality, inadequate disposal of wastewater causes loss of income from fisheries, increased illness and morbidity, higher tariffs resulting from higher costs of producing drinking water, loss of recreational potential and tourism, and loss of biodiversity. The indicator assesses the proportion of wastewater that undergoes different levels of treatment.

(b) *Treatment type*: The proportion of the population who are connected to sewer network with collected wastewater that receives primary, secondary and tertiary treatment before reuse, or direct discharge to the environment without any treatment.

Justification: Wastewater treatment involves a combination of physical, chemical and biological processes that separate and break down the pollutants. Three treatment types or levels are distinguished, namely:<sup>15</sup> (a) primary or physical treatment, which separates the heavy solids; (b) secondary treatment, which is a biological process performed by indigenous bacteria that efficiently break down dissolved and suspended organic matter; and (c) tertiary treatment, which includes removal of residual suspended solids by granular medium filtration or micro-screens, and chemical treatment that eliminates remaining nutrients, such as nitrogen and phosphorus. Secondary or tertiary treatment could also include disinfection prior to discharge into water bodies, or for reuse in irrigation or groundwater recharge. Higher treatment levels translate into a higher quality of the environment and less associated health hazards.

<sup>14</sup> Sixty-fourth General Assembly (GA/10967, 28 July 2010).

<sup>15</sup> Metcalf and Eddy, *Wastewater Engineering: Treatment and Reuse*, fourth edition (2003), chap. 13, p. 1426.

(c) *Reuse utilization*: The proportion of the population who are connected to sewer network with collected wastewater that is reused either without treatment or following primary, secondary or tertiary treatment.

**Justification:** Reuse of wastewater that is adequately treated reduces the demand on freshwater resources, reduces the volume of wastewater discharged to the environment, reduces the cost of water treatment when sources are re-abstracted for domestic supply, and increases the fertility of soil and irrigation water availability for crop production.<sup>16</sup> Treated wastewater is subject to health and environmental guidelines at the international level and standards at the national level. Water and wastewater legislations in many countries of the region require the reusing sector, mostly agriculture, to adhere to these standards depending on the intended reuse.

(d) *Reuse type*: The proportion of the population who are connected to sewer network with collected wastewater that is reused, with or without treatment, for agricultural, municipal or recharge purposes.

**Justification:** In addition to the treatment requirements, wastewater reuse depends on several factors, including, among others, supply and demand, distribution system and storage, associated environmental health risks and cultural acceptance.<sup>17</sup> Wastewater reuse can be classified into three types, namely:<sup>18</sup> (a) agricultural, whereby wastewater is used for the irrigation of food crops, including horticultural crops; (b) groundwater recharge, whereby reclaimed wastewater is used in groundwater recharge for the purpose of augmenting potable or non-potable water, establishing saltwater intrusion barriers in coastal aquifers and storing reclaimed water for future reuse; and (c) municipal, which includes reclaimed wastewater for the irrigation of public parks and golf courses.

(e) *Tariff structure*: The proportion of the population connected to a sewer network and billed either a flat rate (flat tariff) or a rate that increases with the amount of wastewater produced (increasing tariff).

**Justification:** Sanitation or wastewater tariffs typically follow the same structure as water tariffs. In some cases, they are set at a fixed percentage of water tariffs, and in others they are set separately. Sanitation tariffs should include a component to cover the costs of wastewater collection and treatment, in line with the “polluter pays” principle, in order to protect public health and the environment from pollution and to allow the reuse of wastewater. In most ESCWA member countries, however, the sanitation charges are set much lower than the costs of operation and maintenance associated with collection and treatment. Such revenues cover only a portion of costs, while governments cover the remaining cost through direct and indirect subsidies. Efforts must be made to adjust sanitation tariffs following the principle of cost recovery, thereby guaranteeing sustainability of the service.

(f) *Affordability*: The financial burden associated with the cost of connection to a sewerage network in proportion to income. It is the monthly per capita cost for sewage services as a percentage of the monthly per capita income.

**Justification:** The United Nations General Assembly has recently reaffirmed that access to water is a human right, and that basic needs for water and sanitation must be affordable for the poorest sections of society. Affordability of sanitation charges for low-income households could become a significant issue in some

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<sup>16</sup> Wastewater Reuse Forum (March 2002), which is available at: [www.idrc.ca/irci/ev-43793-201-1-DO\\_TOPIC.html](http://www.idrc.ca/irci/ev-43793-201-1-DO_TOPIC.html).

<sup>17</sup> University of Balamand, Lebanon, “Prospects of Efficient Wastewater Management and Water Reuse in Lebanon” (March 2004), which was prepared within the framework of the EMWater Project, “Efficient Management of Wastewater, its Treatment and Reuse in the Mediterranean Countries”.

<sup>18</sup> M. Abu Madi and R. al-Sa’ed, “Towards Sustainable Wastewater Reuse in the Middle East and North Africa. *The Journal of Sustainable Development*, No. 2 (2009), which is available at: <http://journals.cdrc.columbia.edu/consilience/index.php/consilience/article/view/89/15>.

ESCWA member countries where higher tariffs are introduced to offset the cost of operation and maintenance of wastewater utilities, or to invest in the rehabilitation of the broken infrastructure of the water and sanitation sector.

## VI. NEXT STEPS AND RECOMMENDATIONS

33. The next step needed to launch and implement the Arab Regional MDG+ Initiative on Water Supply and Sanitation entails presenting the finalized questionnaire template of the JMP basic as well as additional water and sanitation MDG+ indicators to member states. In this regard, ESCWA, after coordinating with partner organizations, prepared and submitted the draft template to the Technical Secretariat of AMWC in October 2010. The Technical Secretariat then circulated the template to Arab countries for comment in November 2010. ESCWA finalized the template based on comments received by 31 December 2010. The finalized version will be presented to the Technical Scientific and Advisory Committee during its next scheduled meeting in Cairo in February 2011. On the basis of the recommendations of the Technical Committee, the AMWC Executive Bureau will recommend a resolution on this matter that clarifies the next steps to undertake. It is suggested that this could include clarification of the institutional arrangement for data acquisition, analysis and management in preparation for the production and issuance of the first biennial progress report on MDG+.

34. It is suggested that the substantive work of formulating a set of harmonized MDG+ indicators on water supply and sanitation needs to continue under the coordination of ESCWA. This should include the preparation of a knowledge management system and the development of a monitoring and reporting mechanism. The knowledge management system could detail the different stages of data management, including data acquisition, frequency of collection, statistical analysis, validation, and reporting. Within that context, capacity-building and training of member countries on these issues are vital as well as access to sufficient financial resources to support the regional initiative. The regional institutional mechanism for implementing the regional initiative should also be responsible for housing the knowledge management system, collecting the data and ensuring its validation by the AMWC member countries in view of preparing and issuing regional reports and publications.

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