

# Local Water Supply, Sanitation and Sewage

## Country Report

### Morocco

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September 2005

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MEDA Water



**SOGESID**  
SOCIETÀ GESTIONE IMPIANTI IDRICI



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# 1. SUMMARY

## LOCAL WATER SUPPLY, SANITATION AND SEWAGE MOROCCO

### GENERAL CONTEXT

- Average Rainfall: 346 mm / yr
  - Area: 710 850 sq Km
  - Population 30,991,000 (2004<sup>1</sup>)
  - Population Growth rate 1.54% (2004, <sup>2</sup>)
- Population Distribution:
- Urban: 59% (2004, <sup>3</sup>)
  - Rural: 41% (2004, <sup>4</sup>)
- Currency: Moroccan Dirham (MAD) <sup>5</sup> 1 € = 10.1667 MAD<sup>6</sup> (14/10/2005)

### INSTITUTIONAL SETTINGS

**Policy Setting:** Supreme Council of Water and Climate and Ministry of Territorial Activities, water and Environment.

**Executive / Regulatory Level:** State Secretariat in charge of water (S.E.E)

**User Level:** National Office of Potable Water and Local autonomous public corporations

#### Private Sector Involvement:

Morocco has embraced privatisation of the water sector and there are several examples of private sector involvement, both in construction and service administration.

- Casablanca Concession – to serve 3.5 M inhabitants operate water, wastewater and electricity services.
- Rabat Concession – M&O of Water, wastewater and Electricity system
- Tangier and Tetouan concession - operate water, wastewater and electricity services

### WATER STRATEGY

National Water plan – Keeping as focus the development of water resources and related infrastructures, the National Water Plan include also policies and strategies based on integrated water management, promoting private sector involvement and decentralization, increase supply and access to service, especially in rural areas, integrated management of resources, decision making by all stakeholders' participation and demand control including appropriate pricing.

### WATER RESOURCES

- Average annual Renewable Water Resources: 29.00 km<sup>3</sup><sup>7</sup> = total inflow
- Mobilizable water resources: 19 km<sup>3</sup>
  - Surface Water 15 km<sup>3</sup>
  - Groundwater 4 km<sup>3</sup>

Withdrawal total Water Resources and sources of supply

Total water resources regularized: 12 607 Mm<sup>3</sup> (2000)<sup>8</sup>

- Groundwater: 3 166 Mm<sup>3</sup> (2000)<sup>9</sup>
- Surface Water: 9 434 Mm<sup>3</sup> (2000)<sup>10</sup>
- Desalinated Water: 7 Mm<sup>3</sup> (2000)<sup>11</sup>

Total potable water supplied and sources of supply: 860Mm<sup>3</sup> (ONEP)

- Groundwater: 335 Mm<sup>3</sup>

<sup>1</sup> Centre d'Etudes et de Recherches Démographiques (CERED)

<sup>2</sup> Centre d'Etudes et de Recherches Démographiques (CERED)

<sup>3</sup> Centre d'Etudes et de Recherches Démographiques (CERED)

<sup>4</sup> Centre d'Etudes et de Recherches Démographiques (CERED)

<sup>5</sup> Source: The World Fact Book, Morocco ,CIA , 2005

<sup>6</sup> Source: Exchange\_Rates.org, September 2005

- Surface Water: 521 Mm<sup>3</sup>
- Desalinated Water: 4 Mm<sup>3</sup>

#### WATER SUPPLY

- Estimated Rate of population with access to improved drinking water: <sup>12</sup>
  - Urban: 100%
  - Rural: 61%(2004, Etude de diagnostic de l'AEP du monde rural au Maroc, FAO 2005)
- Estimated Rate of population served by public drinking water networks (household connection) 2002<sup>13</sup>
  - Urban: (90% in 2004, ONEP)
  - Total rural population: (22% in 2004 , Etude de diagnostic de l'AEP du monde rural au Maroc, FAO 2005)
- No. of subscribers: 2.930 millions (2003,ONEP)
- Total Potable Water Supplied (Bulk water): 860Mm<sup>3</sup>
- Potable Water Supplied per capita:
- Unaccounted for water (UFW): 30 % (Unaccounted water in urban network 2004)
- Potable Water Consumed per capita: 100 l/cap/day
- Total Billed to distribute/yr: 797Mm<sup>3</sup>
- Service Continuity:

#### SANITATION & SEWAGE

- Estimated Rate of population with access to improved sanitation (2002) <sup>14</sup>
  - Urban:83 %
  - Total Rural population: 41% in 2004 (Etude de diagnostic de l'AEP du monde rural au Maroc, FAO 2005)
- Rate of Population connected through a sewerage connection:
  - Urban: 81%
  - Total Rural population: 1.5% in 2004 (Etude de diagnostic de l'AEP du monde rural au Maroc, FAO 2005)

#### Wastewater

- Total Volume of Wastewater: 650 Mm<sup>3</sup>
- Rate of Wastewater undergoing treatment: 6 %
- Waste water undergoing treatment: 39 Mm<sup>3</sup>
  - Physical: %
  - Biological: %
  - Advanced: %
- Rate of population served by wastewater treatment plants of the total population:
  - Urban: 0 %
  - Rural: 0 %

#### INVESTMENTS IN WATER SECTOR

- Total Investment in the water sector: 24.09 Milliards (between 1993 and 2002, Direction financière de l'ONEP)
- Investment in Water Supply: 9.74%
- Investment Sanitation and Wastewater treatment: \_3.11%

<sup>7</sup> Source: Population Action International , People in the Balance – Update 2004 - Population and Natural Resources at the Turn of the Millennium

<sup>8</sup> FAO Acquastat

<sup>9</sup> FAO Acquastat

<sup>10</sup> FAO Acquastat

<sup>11</sup> FAO Acquastat

<sup>12</sup> Source: WHO UNICEF Joint Monitoring Programme for Water Supply and Sanitation - Estimated Coverage Drinking Water – Updated 2004

<sup>13</sup> Source: WHO UNICEF Joint Monitoring Programme for Water Supply and Sanitation - Estimated Coverage Drinking Water – Updated 2004

<sup>14</sup> WHO / UNICEF Joint Monitoring Programme for water supply and sanitation – Improved Sanitation – Morocco – Updated in July 2004

- Private Sector Part of total investment: 3.26%
- Innovative solutions for financing investments: Private sector participation

#### **TARIFFS**

Residential or domestic tariff system :

- Progressive block tariff. Fixed rental: between 2.5 and 6 DHs/months and also a rental which fluctuates according to consumption-brackets so 0-8 m<sup>3</sup>: 2.13 Dhs/m<sup>3</sup>; 8-20 m<sup>3</sup>: 7.21 Dhs/ m<sup>3</sup>; 20-40 m<sup>3</sup>: Dhs/ m<sup>3</sup>; 40 m<sup>3</sup> and more: Dhs/ m<sup>3</sup>.
- Medium Tariff for 1m<sup>3</sup> of water:
- Metering:
- Responsible institution for setting tariffs:

Interministerial committee of prices (Commission interministérielle des prix) , Ministry of economic and general affairs (le ministère des affaires économiques et générales)

## 2. GENERAL CONTEXT

### 2.1. Geography

Morocco, located in the north-west of the African continent, has a total area of 710 850 km<sup>2</sup>. It is bordered in the west by the Atlantic Ocean, in the north by the Mediterranean Sea, in the northeast by Algeria and in the south-east and south by Mauritania.<sup>15</sup>

- **Area:** 710 850 sq km

### 2.2. Climate

Average annual rainfall is 346 mm, but varies from more than 750 mm in the north, where rain fed agriculture is possible to less than 150 mm towards the south-east, where irrigation is absolutely necessary. Over 50% of the precipitation is concentrated on only 15% of the country's area.<sup>16</sup>

### 2.3. Social Context

The total population is 30.991 million (2004), of which 41% is rural. The average population density is around 42 inhabitants/sq km, but on the coastal areas the population density is highest. It is low in the mountain and desert zones, where it is concentrated around the oases.<sup>17</sup>

- **Population Growth Rate:**  
1.54% (2004)

- **Population Distribution:**  
**Urban:** 59% (2004,<sup>18</sup>)  
**Rural:** 41% (2004,<sup>19</sup>)

- **Currency:**

Moroccan Dirham (MAD)<sup>20</sup> : 1 € = 10.1667 MAD<sup>21</sup> (14/10/2005)

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<sup>15</sup> Source: FAO Country Pages, 2005

<sup>16</sup> Source: FAO Country Pages, 2005

<sup>17</sup> Source: FAO Country Pages, 2005

<sup>18</sup> Centre d'Etudes et de Recherches Démographiques (CERED)

<sup>19</sup> Centre d'Etudes et de Recherches Démographiques (CERED)

<sup>20</sup> Source: The World Fact Book, Morocco ,CIA , 2005

<sup>21</sup> Source: Exchange\_Rates.org, September 2005

### 3. INSTITUTIONAL SETTINGS

#### 3.1. Institutions

Level	Institution	Comment
<i>Policy Setting Level</i>	Supreme Council of Water and Climate	Involving all major stakeholders in the water sector the “Supreme Council of Water and Climate” is the key agency for water policy at national level. It have mainly a consulting role. Having for legal base law 10-95 on water, the CSEC is charged to formulate the general orientations of the national policy of water and the climate and to examine the national strategy as regards to knowledge of the climate and its impact on the water resources, the national plan of water and the plans of installation of the integrated water resources.
	Ministry of Territorial Activities, Water and Environment. (Ministère de l’Aménagement du Territoire, de l’Eau et de l’Environnement)	Ministry of Territorial Activities, Water and Environment, instituted 2003 (former Ministry of Public Works / Le Ministère de L’Equipment)
<i>Executive Level</i>	State Secretariat in charge of Water Secrétariat d’Etat chargé de l’Eau (S.E.E)	<p>A State Secretariat in charge of Water was created within the current government, 7/11/2002. This Secretariat is placed under the Ministry of Territorial Activities, Water and Environment.</p> <p>The main responsibilities of the State Secretariat in charge of water , are to perform research and evaluation of the water resources; analyse weather information and climate evolution; to plan the development of the water resources; to mobilise and transfer water; protect goods and people through weather forecasts and to follow-up the development of different weather phenomena; protect water resources and water infrastructure; research and development in the fields of climate and water.</p> <p>The Secretariat activities</p> <ul style="list-style-type: none"> <li>• satisfying the requirements for water, growing rapidly, through the mobilization of surface water and by finding new sources and to exploit non-conventional water resources;</li> <li>• ensure the balanced access to water services to all regions of the country;</li> <li>• to guarantee the protection of the cities, centers and plains against the floods;</li> <li>• to manage the water resources, promoting water savings and water protection practices;</li> <li>• support research in the fields of the water resources, meteorology and the climate for a better contribution to the socio-economic progress of the country and the reduction of its vulnerability vis-a-vis to the extreme weather phenomena.</li> </ul>
<i>User Level</i>	National Office of Potable Water (ONEP or Office national de l’eau potable)	The National Office for Drinking Water, is in charge of controlling water distribution in urban areas and in some rural municipalities. It plans, builds and operates the installations for treatment and transport from the primary water sources, i.e. reservoirs and primary canals. It acquires and distributes water not only on retail basis to municipal / provincial governments but also directly to end users. ONEP is also responsible for wastewater management.



	Water Basin Agencies (Les Agences de Bassins)	Responsible for water resource administration at regional level allowing a decentralised management. Six agencies were created after June 2002 together with the pilot agencies set up already 1997. The basin Agencies are public companies, independent and administrated through board of directors.
	Local autonomous public corporations	16 autonomous, inter-communal state-owned water companies, which are placed under the Ministry of Interior and supervised by the Directorate for state-owned companies and services. They are in charge of water distribution in the municipalities;
<i>Other Institutions</i>	Ministry of Public Health (MSP or Ministère de la santé publique)	The Ministry of Public Health which, together with ONEP, is in charge of quality control for water resources for drinking water supply networks in the towns and villages.

### 3.2. Public / Private Water Utilities

As for distribution of water in urban areas, locally autonomous public corporations, private companies and ONEP take charge. In 2002, there were 13 local public corporations, with 0.9 million customers, which was 32% of the national total. In 2002, private companies had 1.06 millions customers (39%) in total. For the rest, 244 distribution center managed by ONEP with the customers of 0.600 million (21%) distribute water.<sup>22</sup> (World Bank Report, SECTEUR DE L'EAU ET DE L'ASSAINISSEMENT, 2004)

### 3.3. Private Sector Involvement

Morocco has embraced privatisation of the water sector far more than other countries in the region having signed three major combined water and electricity concessions in Casablanca, Rabat and Tangiers.<sup>23</sup>

#### 3.3.1. Casablanca Concession

On 28<sup>th</sup> April 1997, a consortium known as Lyonnaise des Eaux de Casablanca (Lydec) was awarded a 30 year concession to run the power and water distribution system in Casablanca. The consortium was to invest 18bn francs (\$3.1bn) in its first year of operations. The contract serves 3.5 M inhabitants. The shareholders of Lydec are Lyonnaise des Eaux (now known as Suez) – 35 percent; Elyo (a Suez subsidiary) 24 percent; EdF 18 percent; Endesa 18 percent; Aguas de Barcelona (also a Suez subsidiary) 5 percent.<sup>24</sup>

#### 3.3.2. Rabat Concession

In January 1999 a 30-year concession agreement came into effect with a consortium know as Redal for the management and operation of the electricity, water and wastewater systems serving the greater Rabat region<sup>25</sup> which is expected to experience substantial growth in power demand over the length of the concession. The contract calls for investment of \$1,370m over its 30 year duration.

#### 3.3.3. Tangier and Tetouan concession

In December 2001, negotiations were concluded for a 25-year concession to operate water, wastewater and electricity services for the local authorities in Tangiers and Tetouan. After the direct contracts awarded in Casablanca and Rabat, the authorities wanted to ensure that the Tangiers contract was competitively tendered and a Vivendi-led consortium was named as the preferred bidder for the contract in February 2001.

<sup>22</sup> Evaluation Study on Japan's assistance to water resource development sector in the Kingdom of Morocco - Final Report Summary, 2003

<sup>23</sup> Middle East Economic Digest December 28, 2001 Vivendi Ties Up Tangiers/Tetouan Deal

<sup>24</sup> Bloomberg News April 16, 1997, Lyonnaise Des Eaux Wins Mln Contract From Morocco

<sup>25</sup> Middle East News Items January 25, 1999 Redal Is Now Operational In Rabat

## 4. LEGAL FRAMEWORK

Law	Argument	Comment
Law n. 10-95, July 1995	<i>Water administration</i>	<p>"Water Code of 1995</p> <p>This law is the basis for water policy in Morocco. It state several basic principles regarding water resources and the protection of the resources.</p> <p>Act 10-95 allow a more efficient, decentralized management of water resources that is jointly established at all levels administration, users and elected politicians. It is thanks to this law that the basin agencies were created in order to manage the water coherently, taking into consideration the entirety of the watershed.</p>
<i>Decree n. 2.96.158 of 20 Nov 1996</i>		The composition and responsibilities of the Superior Council of water and climate.

## 5. WATER STRATEGY

National Water plan and Basin Water Plans are to provide technical framework for formulating both national and regional strategies for water management with the objective to implement law 10 – 95 and to create and execute detailed action plans and related investment programmes.

Targets for the water resources sector in the plan are as follows: dams and drilled wells will be constructed so as to meet estimated demand in 2020. Potable water supply will be doubled before 2010 to cope with the 4% per annum demand increase. The rate of the urban population connected to potable water networks in their homes will be raised to 94% in 2010 from 85% in 1999. The access rate to public water supply system in rural areas will also be increased from 38% in 1999. In addition, privatisation of water resources development sector will be promoted.

The country of Morocco is divided into 6 major river basins, with long-term water resources development policies planned and stipulated in Integrated Master Plans. Establishing these plans mainly aims to estimate water demand from different sectors such as potable and industrial water, irrigation and hydropower generation, and to determine optimal integrated scheme of the water resources development.<sup>26</sup>

In rural areas, only 14% of the rural population had public water supply facilities in 1990. Out of the 40,000 villages throughout the country, 46% had less than 200 inhabitants per village, and barely 6% had more than 1,000 habitants. Such small village populations have been a major factor in restricting implementation of potable water supply project in rural areas. At present, Program of Group Potable Water Supply to Rural Population (PAGER) is in progress and the access rate to public water supply system in rural areas had increased from 14% to 50% by 2002, and will also reach 92% in the year 2007.<sup>27</sup>

In the 2000-2004 five-year national development plan, the objectives of the water sector are set as,<sup>28</sup>

- 1) contribution to potable water supply in both urban and rural areas,
- 2) contribution to provisions supply,
- 3) rehabilitation and maintenance of hydraulic facilities,
- 4) improvement and maintenance of water quality,
- 5) protection of people and property against inundation and flood,
- 6) development of hydro-potential for power generation, and
- 7) equitable distribution of water throughout the country and regional development.

Moreover,<sup>29</sup>

- 1) decentralization of water services,
- 2) demand control including appropriate pricing,
- 3) decision making by all stakeholders' participation,
- 4) mainstreaming gender,
- 5) conservation of environment, and
- 6) integrated water management which embraces all of these elements with consideration of finite nature of fresh water resources and protection of ecosystem are also considered important. The global focus has been shifting from development of water resources and related infrastructure to policies and strategies based on integrated water management.

<sup>26</sup> Evaluation Study on Japan's assistance to water resource development sector in the Kingdom of Morocco - Final Report Summary, 2003

<sup>27</sup> Evaluation Study on Japan's assistance to water resource development sector in the Kingdom of Morocco - Final Report Summary, 2003

<sup>28</sup> Evaluation Study on Japan's assistance to water resource development sector in the Kingdom of Morocco - Final Report Summary, 2003

<sup>29</sup> Evaluation Study on Japan's assistance to water resource development sector in the Kingdom of Morocco - Final Report Summary, 2003

## 6. WATER ASSESSMENT

### 6.1. Water Resources

Population		30 991 000
Average annual Renewable Water Resources/ total inflow	km <sup>3</sup>	29.00
Annual Renewable water per capita/ Annual inflow per capita	m <sup>3</sup>	918.76 935.75
Annual Renewable water per capita 2025 (medium projection of population growth)	m <sup>3</sup>	712.17

*Source: Population Action International , People in the Balance – Update 2004 - Population and Natural Resources at the Turn of the Millenium*

Total Water inflow resources are considered 29 km<sup>3</sup> although currently only 19 km<sup>3</sup> are considered technically and economically exploitable. These resources are distributed between 15 km<sup>3</sup> of surface water and 5km<sup>3</sup> of groundwater.

Withdrawal total Water Resources and sources of supply Total water resources regularized: 12 607 Mm<sup>3</sup> (2000)<sup>30</sup>

- Groundwater: 3 166 Mm<sup>3</sup> (2000)<sup>31</sup>
- Surface Water: 9 434 Mm<sup>3</sup> (2000)<sup>32</sup>
- Desalinated Water: 7 Mm<sup>3</sup> (2000)<sup>33</sup>

Total potable water supplied and sources of supply: 860Mm<sup>3</sup> (ONEP)

- Groundwater: 335 Mm<sup>3</sup>
- Surface Water: 521 Mm<sup>3</sup>
- Desalinated Water: 4 Mm<sup>3</sup>

During 2003, the production of drinking water ensured by the ONEP reached 696 Mm<sup>3</sup>, of which 481,2 Mm<sup>3</sup> were sold through distributors, the remainder having been directly distributed by the Moroccan office.

### 6.2. Water Supply

For urban areas, the individual dwelling distribution rate is 87% (2001) and production of potable water reached 845 million m<sup>3</sup> in 2001, increased by 1.8% compared to 2000. ONEP (Office National de l'Eau Potable) covered 80% of its production, and with the remainder coming from private companies such as Elyo.<sup>34</sup>

As for distribution of water in urban areas, locally autonomous public corporations, private companies and ONEP take charge. In 2002, there were 13 local public corporations, with 0.9 million customers, which was 40%/ 32% of the national total. In 2002, private companies have 1.06 millions customers (39%) in total. For the rest, 244 distribution center managed by ONEP with the customers of 0.600 million (21%) distribute water.<sup>35</sup> (World Bank Report, SECTEUR DE L'EAU ET DE L'ASSAINISSEMENT, 2004)

Regarding water supply in rural areas at present, is the Program of Group Potable Water Supply to Rural Population (PAGER) in progress and the access rate to public water supply system in rural areas has increased from 14% to 50% by 2002.

<sup>30</sup> FAO Acquastat

<sup>31</sup> FAO Acquastat

<sup>32</sup> FAO Acquastat

<sup>33</sup> FAO Acquastat

<sup>34</sup> Evaluation Study on Japan's assistance to water resource development sector in the Kingdom of Morocco - Final Report Summary, 2003

<sup>35</sup> Evaluation Study on Japan's assistance to water resource development sector in the Kingdom of Morocco - Final Report Summary, 2003

### Water Service Coverage:

- **Estimated Rate of population with access to improved drinking water:** 80% (2002)
  - Urban: 100% (2002)
  - Rural: 61% (2002)
- **Rate of population served by Public drinking water Networks:** <sup>36</sup>
  - Urban Population Served: 90% (2004)
  - Rural Population Served: 39% (2004)
- **No. of subscribers:** 2.930 millions (2003)
- **Total Potable Water Supplied (Bulkwater):** 1 237 Mm<sup>3</sup>
- **Potable Water Supplied per capita:** 700 m<sup>3</sup>/cap/day
- **Unaccounted for water (UFW):** 30%
- **Potable Water Consumed per capita:** 100 l/cap/day
- **Total Billed Consumption:** 797m<sup>3</sup>
- **Service Level: (service continuity )** 8h/6 day/4week by months

### Sanitation and Sewage

There are about 63 wastewater treatment plants in the country. How many of these that are operational is documented poorly.

Sanitation is the responsibility of the local authorities (the communes), under the supervision of the Ministry of Interior. These communes do not have specific funds for this activity, and the larger towns have come increasingly to rely on public-private partnerships or specialized agencies (municipal water authorities or the *Office National de l'Eau Potable* (National Drinking Water Office)) to manage and finance sewer networks and treatment plants. The communes themselves have no motivation to process wastewater to the levels required for reuse.

### Estimated rate of population with access to improved sanitation <sup>37</sup>

- Urban: 83 % (2002)
- Rural: 32% (2002)

### Estimated rate of population connected through a sewerage connection

- Urban: 81 % (2002)
- Rural : 22%: (2002)

### Total Volume of Waste Water:

Urban: 650 Mm<sup>3</sup>

**Rate of wastewater collected:** 10%

**Rate of wastewater undergoing treatment:** 6 %

### Wastewater Treatment

- Physical: %
- Biological: %
- Advanced: %

<sup>36</sup> Evaluation Study on Japan's assistance to water resource development sector in the Kingdom of Morocco - Final Report Summary, 2003

<sup>37</sup> WHO / UNICEF Joint Monitoring Programme for water supply and sanitation – Improved Sanitation – Morocco – Updated in July 2004

## 7. FINANCE AND INVESTMENT

### 7.1.1. EU finance and water tariffs

In 2002, the EU signed a €120m (\$103m) loan intended to underpin the Moroccan government's reform programme by channelling funds into water and sewerage projects. The 36-month programme is intended to strengthen water sector management and institutional structures, moving the kingdom towards a new more market-oriented water tariff regime. The management of this structural adjustment loan is considered innovative because a significant proportion of the paperwork will be processed through the EU delegation in Morocco rather than in Brussels and the European Commission delegation in Rabat will process dossiers for projects to be supported from the facility.<sup>38</sup>

For the year 2004, Morocco devotes 3,1 billion dirhams (280 million euros) to the financing of projects of drinking water and cleansing. This sum will be invested more in the cities than in the campaigns of Morocco and with the management of the liquid cleansing in 21 cities and localities.

- Total Investment in the water sector: 24.09 Mdhs
- Investment in Water Supply %: 9.74
- Investment Sanitation and Wastewater treatment %: 3.11
- Private Sector Part of Total Investment %: 3.26
- Innovative solutions for financing investments: private sector participation

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<sup>38</sup> MEED Quarterly Report - Maghreb July 11, 2002 Maghreb: Business Update - Morocco

## 8. TARIFFS

Residential or domestic tariff system:

- Progressive Block Tariffs: Fixed rental: between 2.5 and 6 DHs/months and also a rental which fluctuates according to consumption-brackets so 0-8 m<sup>3</sup>: 2.13 Dhs/ m<sup>3</sup>; 8-20 m<sup>3</sup>: 7.21 Dhs/ m<sup>3</sup>; 20-40 m<sup>3</sup>: Dhs/ m<sup>3</sup>; 40 m<sup>3</sup> and more: Dhs/ m<sup>3</sup>.
- Rate of O&M covered through tariffs: %
- Medium Tariff for 1m<sup>3</sup> of water:
- Metering:

Responsible institution for setting tariffs: Interministerial committee of prices (Commission interministérielle des prix) and Ministry of economic and general affairs (le ministère des affaires économiques et générales)

In Morocco, families not connected to the water network pay 7% of their household budget on water, while those that are connected pay only 0.7% (Lahlou and Bahaj, 2002).

In Morocco, the prices for irrigation as well as for drinking water and sanitation services delivered under concession contracts are indexed to inflation rates. In addition to indexing, these contracts typically provide for price hikes at the outset of private sector involvement as an additional incentive. Because of this, users frequently associate the concession of services with substantial price increases, whereas it would be more relevant to compare price with levels of service as well as benefits received in the long-term.

## 9. REFERENCES

Source	Link
Aquastat, FAO Country Pages, 1997, Land and Water Development Division	<a href="http://www.fao.org/ag/agl/aglw/aquastat/countries/morocco/index.stm">http://www.fao.org/ag/agl/aglw/aquastat/countries/morocco/index.stm</a>
The World Fact Book, Morocco ,CIA , 2005	<a href="http://www.cia.gov/cia/publications/factbook/geos/mo.html">http://www.cia.gov/cia/publications/factbook/geos/mo.html</a>
Ministry of Territorial Activities, Water and Environment	<a href="http://www.minenv.gov.ma/index.asp">http://www.minenv.gov.ma/index.asp</a>
Aquastat, FAO Country Pages, 2005, Land and Water Development Division	<a href="http://www.fao.org/ag/agl/aglw/aquastat/countries/morocco/indexfra.stm">http://www.fao.org/ag/agl/aglw/aquastat/countries/morocco/indexfra.stm</a>
ONEP - Office National de l'Eau Potable - Web Page	<a href="http://www.onep.org.ma/alimenta.htm">http://www.onep.org.ma/alimenta.htm</a>
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