



USAID | **JORDAN**
FROM THE AMERICAN PEOPLE

IDARA (INSTITUTING WATER DEMAND MANAGEMENT IN JORDAN)

LEGAL POLICY ANALYSIS ON WATER DEMAND
MANAGEMENT

September 2008

This publication was produced for review by the United States Agency for International Development. It was prepared by the IDARA project.

LEGAL POLICY ANALYSIS ON WATER DEMAND MANAGEMENT

**IDARA
Instituting Water Demand Management in Jordan**

Prepared by:

Barghouthi Law Office for Development Alternatives, Inc. (DAI)

September 2008

The views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

Table of Contents

1.	Executive Summary.....	4
2.	Background and objectives.....	6
3.	Water legislations and policies	7
3.1	Water Legislations.....	7
3.1.1	<i>WAJ Law and By-Law</i>	7
3.1.2	<i>JVA Development Law and By-Law</i>	9
3.2	Water Polices and Strategies.....	10
3.2.1	<i>Water Policies</i>	10
3.2.2	<i>Water Strategies</i>	11
3.3	Water Demand Management Unit.....	12
4.	Legislations and policies related to other Sectors	13
4.1	Legislations relevant to users and operators	13
4.1.1	<i>Agricultural Sector</i>	13
4.1.2	<i>Tourism Sector</i>	14
4.1.3	<i>Industrial Sector</i>	15
4.2	Equipment & Infrastructure.....	16
4.2.1	<i>National Building Law No. (7) of 1993</i>	16
4.2.2	<i>Standards and Metrology Law No. (22) of 2000</i>	17
5.	Legislations relevant to Implementation and Enforcement.....	19
5.1	Incentives	19
5.2	Licensing	19
5.3	Penalties	20
6.	Proposed Water Demand Management Policy	21
6.1	Proposed Urban Water Demand Management Policy items	21
6.2	Proposed policy items for Water Demand Management in Irrigation in Agriculture Component	24
7.	Recommendations	27

List of Acronyms

CoM:	Council of Ministers
EIA:	Environmental Impact Assessment
JISM:	Jordan Institution for Standards and Metrology
JVA:	Jordan Valley Authority
MIT:	Ministry of Industry and Trade
MOA:	Ministry of Agriculture
MOE:	Ministry of Environment
MOT:	Ministry of Tourism
MWI:	Ministry of Water and Irrigation
NBB:	National Building Board
NBC:	National Building Council
WAJ:	Water Authority of Jordan
WDM:	Water Demand Management
WDMU:	Water Demand Management Unit

1. Executive Summary

- 1- Current water legislations are constituted of the 1988 WAJ Law No, (18) and its By-Laws in addition to the 1988 Jordan Valley Development Law No. (19) and its By-Laws.
- 2- The WAJ Law provides WAJ with the mandate to "Regulate the uses of water, prevent its waste and conserve its consumption". The Jordan Valley Development Law mandates the board of the JVA the authority to set all necessary regulations to control the use of water in farm units in the valley, including basis for distribution units supply and cut of supply.
- 3- Passing water policies and strategies under WAJ Law contains a serious contradiction with regards to the entity authorized to pass said polices, and strategies; and to the roles of the Cabinet of Ministries, MWI and WAJ under this law. This contradiction would cause legal constraints as to the enforceability of those polices and strategies.
- 4- No policy or regulation was issued, to date, concerning water demand management, whether for urban or agricultural sectors. In addition, Water Demand Management Unit is not included in the current administrative regulation for the Ministry of Water and Irrigation No. (54) of 1992.
- 5- Implementation of WDM policy relies also on other related legislations (other than WAJ and JVA Laws and By-Laws) which can be utilized to implement certain WDM policy items. Laws that are identified to be relevant for the implementation of certain WDM policy items are;
 - Agriculture Law No. (44) of 2002,
 - Tourism Law No. (20) of 1988,
 - Environmental Law No. (1) of 2003,
 - National Building Law No. (7) of 1993 and
 - Standards and Metrology Law No. (22) of 2000.
- 6- Efficient WDM policy requires the enactment of new Water Law together with relevant By Laws whereby said legislations should ensure that the responsibilities of preserving water, efficient use of water and prohibition of wasting of water is the responsibility of every sector, department and individual in the country. Other recommendations in this regard include:
 - Mandatory codes that fulfill WDM objectives should be introduced and implemented.
 - Compliance with WDM should become a condition for licensing of operators.

- Incentives should be introduced to induce implementation of WDM policy objectives.
- Agriculture policy should be streamlined with WDM, and
- Implementation of WDM policy should be institutionalized as a function of MWI/WAJ/JVA/Water utilities and relevant institutions.

2. Background and objectives

In addition to water supply management, the Ministry of Water and Irrigation is embarking on new innovative approaches to meet the mounting water demand resulting from high population growth, large influxes, economic growth and the construction boom, and the inefficiencies in the system.

Water demand management is an integral component of water resources management. Water Demand Management is composed of Institutional, legislative, economic, technical and public education programs and tools to aggressively promote water use efficiency. Water demand management will provide additional savings that could be allocated to less privileged consumers and other competing sectors, reduce the energy bill, and reduce the gap between supply and the increased demand.

The Ministry of Water and Irrigation is implementing many of the water demand management programs, activities, and tools to promote water efficiency and address the increased demand. However, without the regulatory framework, the implementation of these programs and activities cannot be sustained. As such, the Ministry of Water and Irrigation through the water demand management unit is developing the National Water Demand Management Policy that addresses the management of water demands in all sectors of Jordan's economy including municipalities, industry, tourism, agriculture and other activities of national importance.

This report aims to identify the different sectors that impact water use and play a major role in the socio-economic development process in the Hashemite Kingdom; as well as review the current water demand management practices, policies, laws/bylaws and instructions set by the different ministries in the above sectors. Based on the above, the report will highlight current conflicting practices, laws/bylaws with the proposed national water demand management policy items, and make recommendations for water demand management regulations, laws/bylaws; and potential enforcement mechanisms including incentive-based and punitive mechanisms.

The different sectors that were identified as having an impact on water use and water demand, were categorized, for the purpose of this report, in three categories: Legislations relevant to users and operators

1. Legislations relevant to Equipment & Infrastructure
2. Legislations relevant to Implementation and Enforcement

3. Water legislations and policies

This section aims to analyze the provisions and the elements of WDM as they exist in the current water legislations and policies:

3.1 Water Legislations

Water legislations in Jordan are constituted of two laws: **Water Authority Law No. (18) of 1988 (WAJ Law)** and **Jordan Valley Development Law and its amendments No. (19) of 1988 (JVA Law)**. Both WAJ and JVA are administratively linked to the Minister of Water and Irrigation according to article (3) of the Administrative Regulation of MWI No. (54) of 1992. A number of Bylaws, regulations, and instructions, were issued pursuant to the aforesaid laws. The following WDM related Laws & By-Laws were analyzed.

- Water Authority Law.
- Potable Water Regulation No. (67) of 1994, issued pursuant to WAJ Law.
- Underground Water Regulation No. (85) of 2002, issued pursuant to WAJ Law.
- Jordan Valley Development Law and Its Amendments No. (19) of 1988.
- Instructions of 2003 for Regulating Water Use for Irrigation, issued pursuant to JVA Development Law.

3.1.1 WAJ Law and By-Law

Elements of WDM are stated under WAJ Law in the following two articles;

- 1) WAJ is mandated in article (6/h) the power to **"Regulate the uses of water, prevent its waste and conserve its consumption"**.
- 2) The Board of WAJ is responsible according to article (10/b) of WAJ Law for **"Approving the water policy of the Kingdom and the plans for the development and conservation of water resources, specify water distribution and uses, provide additional water resources and approve plans regarding the construction of water and public wastewater networks"**.

It is worth noting that WAJ Law focuses on the mandate of WAJ as an administrative authority. In addition, and as the name of the Law indicates, the Law is a water authority law and not a water sector law.

This concept is not supportive enough with regard to introducing WDM legislative tools nor programs. For instance, the WAJ Law does not include provisions that require the implementation of WDM programs by the different sectors of the economy (Industrial, Agricultural, Residential, Tourism, Health, etc) nor does it include provisions that prohibit practices that are counteractive to WDM practices.

However, and as per item (2) under article (12) in regulation No. (67) of 1994 for Potable Water WAJ has the right to disconnect water upon the failure of the subscriber to do the required maintenance for the internal network (defined as the part of the water network after the Water Meter).

This article exceptionally provides a supportive legal ground to WDM whereby it brings an obligation on subscribers to provide necessary maintenance for their internal network in order to avoid wasting of water.

For instance, and according to the above article, WAJ would be entitled to disconnect water in the following cases:

"WAJ may disconnect the water in the following cases:

1. Failure to pay for water consumed within the period specified by the Authority.
2. Failure to provide maintenance for the **internal network to stop any leak or waste in water use.**
3. Causing any damage for the main network, and house connection, and the meter
4. Selling or supplying water to any party or using water for other purposes than those specified in the license, or using water without a meter.
5. If there is any violation to the provisions of this regulation or to the terms of the license or any signed pledge with the Authority regarding water use.
6. The opposition of the authorized staff of the Authority during the performance of their duties delegated under this regulation.
7. Upon a decision issued by competent courts or at the request of an official party or a municipality in accordance with their laws and regulations.

In addition, the Underground Water Regulation No. (85) of 2002 and its amendments, provide a clear statement in Article (3) that underground water is the property of the state and therefore, usage of underground water is prohibited unless a license was issued pursuant to the aforesaid regulation whereby usage and extraction quantity are specified.

Article 3:

A- The underground water is owned and controlled by the State. Extraction or utilization thereof is prohibited except by a license issued under this By-Law prescribing therein the usage, the extraction quantity and any other condition.

As per the article (17) below, WAJ has the authority to cancel the extraction license upon violations of license conditions.

Article 17:

On the submission of the Secretary General, the Board may take a decision to the following effect:

A- The cancellation of a drilling or an extraction license, if the licensee violates any of the conditions therein, and the shutting down of the well until the breach is rectified.

B- The cancellation or amendment of the license conditions if the public interest so requires.

Furthermore, and as per article (4) usage of Underground Water for Agriculture purposes shall be determined by WAJ in coordination with the Ministry of Agriculture as stated in said Article.

Article 4:

The regulatory measures for ensuring safe extraction from any water basin shall be determined by the WAJ Board in coordination with the Ministry of Agriculture, which defines the arable area of the land from which the water is extracted and the quantities of water needed for its irrigation in the light of the sort of the crops and the irrigation methods used for this purpose.

3.1.2 JVA Development Law and By-Law

JVA is mandated in Article (3) of its Law "The development of the water resources of the valley **and utilizing them for purposes of irrigated farming, domestic and municipal uses, industry, generating hydroelectric power and other beneficial uses; also their protection and conservation and the carrying out of all the works related to the development, utilization, protection and conservation of these resources**".

Furthermore, the JVA Board is mandated the authority, according to article (24) of the JVA Law to set **all necessary regulations to control the use of water in farm units in the valley**, including basis for distribution units supply and cut of supply, and fix the maximum quantities to be delivered in accordance with water availability and the

nature of the crops planted in the unit, provided that these regulations shall include control procedures required for their enforcement considering that water prices shall be defined upon a decision from the CoM according to recommendation from the Board".

In 2003, JVA issued Instructions for regulating water use for Irrigation. Under said instructions, the JVA was mandated the power to prohibit planting of certain crops.

Although the JVA Law mandates the JVA certain authorities relevant to WDM as stated in the above articles, the Law does not provide any stipulation to support JVA mandate by any approved water policy or any WDM policy issued by the MWI or the CoM. The Lack of policy boundary or stipulation for JVA to regulate within an approved policy may weaken the ability of JVA to introduce or implement plans and programs that serve WDM in the Jordan Valley.

3.2 Water Polices and Strategies

3.2.1 *Water Policies*

To date, there is no policy for WDM that was issued pursuant to any law in Jordan. Also, the WAJ Law contains no reference for setting forth a WDM Policy, either by MWI or WAJ.

Despite the above, we note that elements of WDM are present in a number of policies, programs and initiatives as will be illustrated in this section..

To put this section in its perspective, it is important to make a brief remark on the policy and strategy making processes according to the current water legislations.

Water Policy within WAJ Law and JVA Law:

Article (5) of WAJ Law states that the MWI shall carry the full responsibility for all water and wastewater systems and the related projects and shall set **forth a water policy and submit it to the CoM for Approval**".

On the other hand, Article (10) of the same Law (WAJ Law) states that "The Board of Directors of WAJ shall undertake the following duties and responsibilities:

(a) Set forth a water policy that reserves the rights of the Kingdom in all its water resources including the development, maintenance, and use of the resources.

(b) Approve the water policy of the Kingdom and the plans for the development and conservation of water resources, specify water distribution and uses, provide additional water.

In light of the above, the WAJ Law contains a contradiction with regard to setting out a water policy. Article (5) of WAJ Law mandates MWI the responsibility to prepare the

water policy and submit the same to the CoM for approval. Article (10/a) of the same Law, grants the Board of WAJ the responsibility to set forth a water policy and article (10/b) grants WAJ Board the power to approve the water policy.

As for the JVA Law, the Law is completely silent on policy making process and that JVA has no reference in its Law to any type of Policy, WDM Policy or any other Policy of the GoJ.

3.2.2 *Water Strategies*

There is no reference in WAJ Law nor JVA Law of a Water Strategy for the Kingdom. Water Strategy was mentioned in Article (10) of the **Administrative Regulations of MWI of 1992**, whereby said article mandates the Department of Planning at MWI, the responsibility to **participate in the preparation of a Strategy for the Water Sector and the preparation of plans and programs for securing the water needs of the Kingdom.**

A Water Strategy has been adopted in 1997 by the government. This Strategy calls for adopting a dynamic regime of **demand management and supply management of Water Resources.**

Article (19): "Resource Management shall continually aim at achieving the highest possible efficiency in the conveyance, distribution, application and use of water. It shall adopt **a dual approach of demand management and supply management.**

Article (20): **A dynamic regime of demand and supply shall be instated and updated..."**

The Strategy was supplemented with a set of policies, which does not include a policy for WDM. The policies that were issued in furtherance to the Water Strategy were:

- Groundwater Management Policy
- Water Utility Policy
- Irrigation Water Policy
- Wastewater Management Policy.

A number of legal issues may be raised with regard to the above-mentioned water strategy of 1997 and the four policies. For instance, issuance of a "Water Strategy" is not mandated to any entity under WAJ Law, nor was the Strategy of 1997 issued on the basis of any article within the same law. Therefore, its enforceability on governmental departments is questionable.

Furthermore, the Water Strategy lacks institutional mechanisms for its implementation. While other ministries, such as the Ministry of Agriculture was granted approval by the COM on the implementation mechanism of the Agricultural strategy developed in 2003 and valid until 2010. A steering committee was established to supervise the National Agricultural Strategy. The steering committee is chaired by the minister of agriculture

and includes in its board, the Minister of MWI. Furthermore an implementation committee was formulated under said mechanism to follow up with stakeholders.

As for the JVA, we note that the law is completely silent on strategy making process.

3.3 Water Demand Management Unit

A Water Demand Management Unit (WDMU) was established at the MWI by the end of 2002 to undertake the responsibility of WDM programs for all sectors in Jordan.

It is being perceived that WDMU aims at introducing policies, activities, and programs that assist in reducing the demand on fresh water in a serious attempt to match it with the available supplies before embarking on the development of additional water resources and supplies. The WDMU is undertaking programs of research, development, implementation and evaluation of water demand management measures for all major sectors of water use in the country. Said programs are categorized under four major groups of WDM initiatives as follows:

1. Development of water-efficiency laws and regulations.
2. Public education and information programs.
3. Water saving incentives and management programs.
4. WDM research and development.

It is noteworthy that **the Administrative Regulation for the Ministry of Water and Irrigation No. (54) of 1992 that is currently in force does not include any reference to the WDMU nor its roles and responsibilities.**

4. Legislations and policies related to other Sectors

In addition to the above water legislations, policies and strategies, there are legislations related to other sectors that have an impact on WDM policy items. As mentioned in the introduction of this report, said legislations were categorized under three categories, for the purpose of this analysis:

3. Legislations relevant to users and operators
4. Legislations relevant to Equipment & Infrastructure
5. Legislations relevant to Implementation and Enforcement.

4.1 Legislations relevant to users and operators

This analysis focuses on the users and operators in the following main sectors; **Agricultural, Tourism and Industrial** sectors

4.1.1 *Agricultural Sector*

The Agricultural Sector is primarily regulated by the Agriculture Law No. (44) of 2002 (Temporary).

According to article (3) of the Agriculture Law, the MOA is responsible for the planning and development of the agricultural sector to achieve a number of objectives that include **improving the efficient usage of water for irrigation at the farm level.**

Article (3) of Agriculture Law:

"The Ministry shall be mandated the authority to regulate the Agricultural Sector and its development to achieve the following main objectives in coordination with the relevant authorities whenever it is required: **9. Improving irrigation water use efficiency on the farm level.**"

Furthermore, article (15) of the Agriculture Law mandates the MOA the responsibilities to introduce irrigation systems that are adequate at the farm level; and to coordinate with other relevant agencies to **organize the demand for water for irrigation and its management.**

Article (15) of Agriculture Law:

- A. The Ministry shall identify the appropriate irrigation systems on the farm level.
- B. The Ministry shall cooperate with relevant authorities in regulating demand on irrigation water and the development of its management.
- C. The Minister shall issue instructions that determine the conditions for usage of wastewater, treated water, salt water in the irrigation of crops and the types of crops that are permitted to be irrigated with each type of water.

The above-mentioned articles in the Agriculture Law, call for coordination between MWI, (WAJ, JVA) and MOA with regard to WDM. The coordination level could be further enhanced upon the adoption of WDM Policy in the Agriculture sector.

The MOA issued Instructions No. (4) of 2004 for the use of Treated Water and Brackish Water in Agriculture. It is believed that said Instructions are supportive to WDM and should be constantly upgraded in coordination with the MWI, WAJ and JVA taking into account the National Agricultural Strategy, referred to in section (3.2.2) of this report.

4.1.2 Tourism Sector

The tourism sector is governed, primarily, by the provisions of the Tourism Law No. (20) of 1988 and its amendments. Licensing of hotels is regulated by the MOT as per the Regulations No. (7) of 1997 issued pursuant to the Tourism Law.

According to article (4) of the Tourism Law, the MOT grants licenses to hotels in accordance with the process specified in the Tourism Law:

Article (4):

"Hotels shall be licensed through a request submitted to the MOT. The applicant is requested to submit for certification by the ministry, an ownership certificate or a lease agreement of the existing or to be constructed **building together with all building plans which are duly approved by the concerned bodies**".

Based on this article, the MOT is mandated to examine and approve the building plans for hotels for hotel licensing purposes. Thus MOT can become an active participant in the implementation of the Tourism Water Demand policy item, efficient water use, water conservation, rainwater harvesting, gray water or on-site treated waste water, once a WDM Policy is adopted (passed through CoM). The above-mentioned regulation for hotel licensing will also need to be updated to take into account the new requirements under the recommended Water Demand Policy

4.1.3 Industrial Sector

The industrial sector in Jordan is not regulated by a single legislation. There is no licensing bylaw that is currently implemented for licensing of factories. However, the establishment of industrial facilities would normally require compliance with the Environmental Law No. (1) of 2003 (Temporary) and By-Laws, particularly if the concerned factory falls within the industries listed under the Environmental Impact Assessment Regulation (EIA) No. (37) of 2005.

It is thus important to note that the EIA Regulation does not only apply to Industries; and can be extended to other projects in the tourism, agricultural and trade sectors where said projects may have an impact on the environment.

Article (4) of the EIA Regulation states that:

"A. No Industrial, Agricultural, Commercial, Residential, Tourism projects or any construction or any of the projects provided for in Appendices (2) and (3) of this Regulation shall operate all its relevant services before obtaining the environmental approval required from the Ministry".

In addition, the MWI is represented, as per Article (5) of the EIA Regulation at the Technical Committee of the EIA Regulation. Said committee is responsible for reviewing the terms of reference of any project that falls within the scope of the Environmental Impact Assessment Regulation.

Based on the above, the requirements of any approved WDM Policy, can be implemented, where relevant to industrial projects, through the licensing conditions required under the EIA Regulation. Article (12) of said Regulation states that the owner of any project **should comply, at the commencement of the project and throughout its operations, with all conditions stated in the EIA study and any further conditions required by the MOE in this regard.**

4.2 Equipment & Infrastructure

Similar to user's legislations, infrastructure legislations would impact WDM. This subsection focuses on the following two Legislations that have a strong correlation with the development and implementation of WDM.

- **National Building Law No. (7) of 1993.**
- **Standards and Metrology Law No. (22) of 2000**

4.2.1 *National Building Law No. (7) of 1993*

According to article (5) of the National Building Law, the Board of the National Building (NBB) is mandated the following duties:

Article 5 of the National Building Law

- a. Lay the foundations and principles relating to National Building codes and determining the coverage of each code in accordance to the recommendation of the technical committee.
- b. **Certifying different codes relating to national building and sending them to the Council of Ministers to be adopted.**

Furthermore, article (10) of the National Building Law grants the CoM the authority to identify Mandatory Building Codes upon the recommendation of the NBB.

Article 10 of the National Building Law:

"The Council of Ministers shall identify upon the recommendation of the National Building Council construction works and the areas where the certified codes are mandatory to be applied in accordance with the provisions of this Law, and in such a case the codes shall become a part of the conditions of the construction license. All natural and legal persons must comply with such codes otherwise they shall become legally liable for their non-compliance".

In light of the above, with proper coordination between MWI/WAJ and NBB, the Building Law can be a very useful legislative tool to serve WDM requirements, through adopting and enforcing appropriate Water Codes for Buildings that satisfy WDM policies.

4.2.2 Standards and Metrology Law No. (22) of 2000

The Law for Standards and Metrology provides a strong basis for WDM policy objectives with regard to water using equipments. In this connection, it is noted that the MWI is represented at the Board of JISM as per Article (6) of the aforesaid Law. The Board of JISM is responsible, inter alia, as per Article (8) of the law for the approval, withdrawal, or replacement of technical regulations and standards and any amendments or suspension thereof.

Article (8):

The Board shall have the powers and perform the tasks stated in the following clauses:

- a. Formulation of the general policy of the Institution.
- b. Approval, withdrawal, or replacement of technical regulations and standards and any amendments, and their suspension thereof...."

Article (11) of the said Law allows for certain technical regulations to be applied on products to satisfy any legitimate objective; thus providing an inductive ground to introduce and implement WDM policy items.

Article (11):

"Wherever possible and appropriate, the standards and technical regulations shall be based on product requirements in terms of performance rather than design or descriptive characteristics. Technical regulations are approved when they are necessary to fulfill legitimate objectives, such as national security requirements; the prevention of deceptive practices; to ensure human health and safety, animal and plant life and health, or the protection of the environment, taking into account the risks that non-existence of such regulations would create. The approved technical regulations or standards shall not be more than necessary to fulfill the legitimate objectives or the required level of protection".

Furthermore, the Law clearly requires that all public and private sector entities, shall comply with the technical regulations set in accordance with the Law:

Article (17):

"The Ministries, government departments, public corporations, municipal and rural boards shall comply with the technical regulations in carrying out their activities, projects, tender terms, and purchases of products and materials.

Industrial companies and institutions shall be responsible for compliance with technical regulations for the products they produce and the materials used therein and the production methods.

All industrial and commercial institutions and companies shall comply fully with the approved technical regulations related to the protection of the environment, health and vocational safety".

In light of the above, with proper coordination between MWI/WAJ and JISM, the Standards and Meteorology Law provides a supportive and efficient mechanism for implementing WDM requirements with regard to water equipments codes and technical regulations.

5. Legislations relevant to Implementation and Enforcement

Enforcement of policies, WDM included, may be achieved through a set of mechanisms that include Incentives, Licensing requirements and Penalties:

5.1 Incentives

A straightforward solution that provides incentives on WDM compliance would be the Customs Law No. (20) of 1998 and Its amendments. Although the Customs Law does not provide any specific provision on customs exemptions for use of water conservation equipments, the Law allows in article (149/c) for the CoM to decide on custom exemptions upon the recommendation of the Minister of Finance. Similarly, exemptions from Sales Tax can be achieved in accordance with article (22/c) of the Sales Tax Law: " Any goods or services and any person might be in whole or in part exempted from the sales tax upon the approval of the Council of Ministers and in specific cases and for justified reasons upon the recommendation of the Minister of Finance".

In light of the above, MWI / WAJ need to coordinate efforts with the Ministry of Finance to develop incentive mechanisms for WDM.

5.2 Licensing

As stated in this report, licensing conditions are required within a wide range of legislations (Tourism Law No. (20) of 1988, Environmental Law No. (1) of 2003, National Building Law No. (7) of 1993 the Standards and Metrology Law No. (22) of 2000, Regulations of Cities and Villages No. (79) of 1966... etc.).

The licensing conditions, where applicable, can become efficient tools for the implementation and compliance with WDM conditions in the industry where licensing is required. The Licensing mechanism would, of course, need to be coordinated between the competent water authority that is responsible for the implementation of WDM and the relevant authorities within the subject matter industry. With proper coordination, compliance with WDM conditions should become no less required than Environmental Approvals by the MoE.

5.3 Penalties

Penalties on violations of WDM are not explicitly stipulated under WAJ Law or the Penal Code (being the Law concerning penalties). Explicit statements on violations of WDM, should state actions (by example or description) that constitute non-compliance with WDM conditions similar to what is stated under article (30) of WAJ law that incriminates certain violations on water use:

- "Any one shall be sentenced to no less than one month, and no more than six months, imprisonment or shall be fined not less than JD 100 and not more than JD 1000, if he has committed any of the following acts:
- The illegal usage of water, water resources, related projects or the public sewers, contravening the provisions of this Law, or regulations issued there under, including the selling, granting or transporting water, using or utilizing it or committing any act that may cause harm or damage to any of these resources or water related projects, or using the public sewers in a manner that conflicts with the provisions of this Law.
- Carrying, out any works regarding water or wastewater without obtaining the licenses, permits or approvals required under this Law. Or carrying out any of these works in violation of the regulations issued there under".
- Similarly, article (31) of the JVA Law incriminates actions on violations on water projects and resources as follows:
- "Without prejudice to any other severe punishment prescribed under the Penal Code, anyone who deliberately sabotage or damage any of the Authority projects shall be punished with imprisonment for not less than three months and not to exceed one year or of a fine not less than two hundred Jordanian dinars and not to exceed one thousand Jordanian dinars.
- Any person who makes or takes any arrangement to obtain water or to benefit from any water source from any of the sources of the Valley and which he is not entitled to obtain or use in accordance with water ownership right duly recorded in the water registrar and without the permission of the Authority, shall be punished with imprisonment for not than a month and not to exceed one year or of a fine of not less than two hundred Jordanian dinars and not to exceed one thousand Jordanian dinars or with both punishments, and the Court shall have, in addition to imposing the punishments, the power to order the removal of any arrangements or works that caused the violation on the expense of the sentenced person".

6. Proposed Water Demand Management Policy

In this section, proposed policy items for WDM in Urban and irrigated agriculture components are listed and analyzed, where applicable, on the relevant legislations.

6.1 Proposed Urban Water Demand Management Policy items

- **On Instituting Water Demand Management**

The absence of policies and directives for WDM under WAJ Law; and the absence of defined status and function for WDMU under the Administrative Regulation for the Ministry of Water and Irrigation No. (54) of 1992, cause legal constraints with regard to passing and enforcing directives within WDM Policies on stakeholders. The WAJ Law should be updated to include the mandate for passing mandatory directives on stakeholders to implement WDM Policies.

- **On Codes and Equipment Certification**

As stated in part one of the report, this policy item relates and can be implemented through the provisions of the National Building Law No. (7) of 1993 and its amendments, whereby mandatory building codes will be considered part of the Building License. In addition, the subject policy item can be implemented by the Law of Standards and Metrology, whereby JISM can impose technical specifications relevant to water equipment.

- **On Reduction of Non-Revenue Water**

Existing provisions in WAJ Law and the Regulation of Potable Water needs to be amended to include stricter provisions prohibiting illegal use of water including those actions that constitute wasting of water. It is probably advisable that the update of the legislation should capture both penalties on violations and incentives for compliance with this policy item.

- **On Water Pricing**

This policy item is mandated to the CoM as per article (10/f) of WAJ Law, whereby WAJ recommends to the Council of Ministers tariffs for connections, subscriptions, and price rates. Any update of the legislation with regard to this policy item should state the principles of water pricing and require WAJ (or any competent regulatory entity) to follow and maintain said principles.

- **On Water Supply Augmentation Using Rainwater Harvesting, Graywater or on-site Treated Waste Water**

No reference in WAJ Law nor JVA Law for this policy item. However, this policy item relates and can be implemented as indicated in section (4.2) of the report, through licensing requirements under the National Building Law and Environment Protection Law.

Furthermore, it is noted that the Law for Regulating of Cities, Villages & Buildings provides municipalities (including Greater Amman Municipality) the ability to regulate and impose for building permits, a number of building conditions and requirements that include establishment of wells for rainwater harvesting as well as water related facilities.. However, a question remains to be answered with regards to how strict are Municipalities in imposing such building requirements.

- **On Reuse of Treated Waste Water**

No reference in WAJ Law nor JVA Law for this policy item. However, this policy item relates and can be implemented as indicated in section (4.2) of the report, through licensing requirements under the National Building Law and Environment Protection Law.

- **On Prohibition on Wasting Water**

As stated in section (3.1.1) of this report, article (12) of the Regulation on Potable Water mandates WAJ the authority to disconnect water from subscribers who commit certain violations on water use including non-maintenance of internal network that cause leakages or waste. However, it is recommended that the said regulation should be revised to include other actions that cause wasting of water.

- **On Comprehensive Water-Use and Water Demand Management Information Program**

No reference in WAJ Law is available for said policy item. Moreover, as stated in section (3.3) of the report, the Administrative Regulation for the Ministry of Water and Irrigation No. (54) of 1992 that is currently in force does not include any reference to the roles and responsibilities of WDMU or WDM programs.

- **On Education and Public Awareness**

No reference in WAJ Law is available for said policy item. Moreover, as stated in section (3.3) of the report, the Administrative Regulation for the Ministry of Water and Irrigation No. (54) of 1992 that is currently in force does not include any reference to the roles and responsibilities of WDMU or WDM programs.

- **On Water Demand Management Programs**

No reference in WAJ Law is available for said policy item. Moreover, as stated in section (3.3) of the report, the Administrative Regulation for the Ministry of Water and Irrigation No. (54) of 1992 that is currently in force does not include any reference to the roles and responsibilities of WDMU or WDM programs.

- **On Industrial Water Demand**

As stated in section (4.1.3) of this report, no specific industrial regulation that could be used for the implementation of WDM on Industries is currently present. However, this policy item may be implemented through the EIA Regulation as provided under the Protection of Environment Law.

- **On Tourism Water Demand**

No reference was found in the Tourism Law or Water Laws for this policy item. However, it may be implemented through the MOT via the hotels regulation as well as EIA Regulation referred to in part one of the report.

- **On Water-Wise Landscaping**

No reference to this policy item in WAJ Law was found. As stated in the comment on Water Supply Augmentation and Using Rainwater Harvesting, the Law for Regulating of Cities, Villages & Buildings may be utilized to impose regulations by competent authorities (Municipalities including Greater Amman Municipality) to implement this policy item.

- **Water Efficiency Assistance for Low Income Consumers**

No reference to this policy item in the current Laws.

- **On Training and Capacity Building**

No legal issue regarding this policy item.

- **On Water Demand Management Research and Development**

No legal issue regarding this policy item.

- **On Best Management Practices**

No legal issue regarding this policy item.

- **On Water Exchange Option**

This policy item may not be possible to achieve under the current regulation of Underground Water, where it is stated under Article (11) that:

The owner or the possessor of a private well is hereby prohibited to do the following:

- A. To irrigate any land other than that specified in the water extraction license or to sell this water for irrigation purposes.
- B. To sell the water extracted from the well by water-tankers for drinking purposes or any other purpose without obtaining a prior written approval from the Secretary General, or his delegatee, and according to conditions outlined for this purpose.

It is recommended to update the above law to include this policy item.

- **On Financial Mechanisms for Improving Water Efficiency**

No legal issue regarding this policy item.

- **On Key Performance Indicators**

No legal issue regarding this policy item.

6.2 Proposed policy items for Water Demand Management in Irrigation in Agriculture Component

- **On Legislation and Institutional Arrangements**

Legislation on irrigation is divided between JVA Law, Agricultural Law and WAJ Law (Regulations on Ground water). The absence of approved WDM Policy and/or regulation for irrigated agriculture in the relevant legislations (WAJ, JVA or Agriculture Law) cause legal constraints with regard to passing and enforcing directives to

implement this policy item. Current Laws need to be updated to establish and streamline instructional arrangement to implement WDM for irrigated agriculture.

- **On Enforcement**

Implementation of this policy item can be achieved to some extent on the basis of article (24) of the JVA and the JVA Instructions of 2003 for regulating water use for Irrigation. However, similar to the above comment on the legislation and institutional arrangements, enforcement of WDM in irrigated agriculture may have legal constraints in the absence of adopted policies and implementing regulations.

- **On Water Pricing**

The CoM is mandated under article (24) of the JVA Law the authority to set water prices. Any update of the legislation with regard to this policy item should state the principles of water pricing and require JVA (or any competent regulatory entity) to follow and maintain said principles.

- **On Financial Mechanisms for Enhancing Water Use Efficiency**

Not available under WAJ Law, JVA Law or Agriculture Law.

- **On Best Management Practices**

No legal issue regarding this policy item.

- **On Key Performance Indicators**

No legal issue regarding this policy item.

- **On Implementing a Monitoring Program on Water Use Efficiency**

No legal issue for this policy item.

- **On the Sustainability and Efficiency of Irrigation Systems**

No reference in current legislation.

- **On Drought Management**

No reference exists to this policy item under WAJ Law nor JVA Law. However article (65) of the Agriculture Law mandates the MOA to mitigate drought implications on Agricultural sector.

- **On Technology Transfer and Adaptation**

No legal issue regarding this policy item.

- **On Training and Capacity Building**

No legal issue regarding this policy item.

- **On Research and Development**

No legal issue regarding this policy item.

7. Recommendations

1. A “Water Sector Law” as opposed to Water Authority Law

The water sector in Jordan needs to be regulated, organized and structured by an updated water law to be enacted for that purpose. Existing laws, whether WAJ Law or the JVA law, focus on administrative issues relevant to the water authorities and their mandate (WAJ and JVA) as opposed to water resources and uses legislations. The updated law should take into account that the responsibilities of preserving water, efficient use of water and prohibition of wasting of water extend to every, sector, department and individual in the country and that implementation of relevant WDM polices should become a directive on each governmental authority according to its competence.

2. WDM Policy as an integral part of Water Policy set by the MWI and approved by the CoM

The issuance of a Water Policy for the Kingdom contains a serious contradiction within WAJ Law. The WAJ law mandates the MWI to develop a Water Policy and submit it to the CoM for approval. Similarly, the Board of WAJ is mandated under WAJ Law, the responsibility to develop and approve a water policy. An amendment to the Law must include a clear provision on the mandate of MWI to develop a Water Policy that encompasses Water Supply and Water Demand, for the CoM to approve and be adopted by all stakeholders as defined in the policy statement. MWI should also be mandated for developing a Water Strategy and adopting plans and programs to achieve the approved Water Policy objectives.

3. Implementation of WDM policy to be institutionalized as a function of MWI/WAJ/JVA/ water utilities and relevant institutions

The current Administrative Regulation of MWI does not include WDMU structure and responsibilities. Institutionalizing WDM is a prerequisite to proper implementation of WDM policy objectives.

4. Compliance of WDM as a condition for supply of water to consumers

As part of enforcing WDM Policy, compliance with WDM conditions must become a condition for the supply of water to consumers. For example (as stated above in this report), the Regulation of Potable Water allows WAJ to disconnect supply of Water if a leakage in the Internal Water Network (after the Water Meter) is not fixed.

5. Mandatory codes that fulfill WDM objectives

This would include building codes, fixtures codes, and maintenance codes. More importantly, there is a need to introduce a special WDM compliance codes to hotels, compounds, factories, and high-rise buildings to ensure that those major users comply with WDM requirements.

6. Compliance with WDM as a licensing condition for operators

As explained within the Users' Legislation section, any major user, such as factories, companies, hotels, and hospitals must demonstrate that they will be in compliance with the requirements of the WDM Policy. However, there should be a monitoring and inspection procedure to ensure that compliance is not limited to the time of applying for the license only. The requirements of continuous compliance with Environmental approvals by factories may be a good example to illustrate this requirement.

7. Incentive mechanisms to be introduced in Water Law to implement WDM

Such incentives could vary from lowering the tariffs to subscribers who prove their compliance with the provisions of the WDM Policy to providing financial support to those subscribers. Waivers and reduction of Customs and Sales Tax on equipment compliant with WDM requirements should also be looked into in order to ensure implementation of WDM policy items.

8. Agriculture policy streamlined with WDM

The agriculture sector is a major consumer of water resources and hence, the agriculture policies, Laws and regulations must take into account the provisions of WDM Policy to ensure that water consumed in the sector is managed to the highest standards; and that all subscribers are in full compliance with the provisions of WDM Policy.