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INSTITUTIONAL SUPPORT & STRENGTHENING PROGRAM

INSTITUTIONAL ASSESSMENT REPORT

October 2011

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INSTITUTIONAL SUPPORT AND STRENGTHENING PROGRAM (ISSP)

INSTITUTIONAL ASSESSMENT REPORT – Executive Summary

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DISCLAIMER

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

ACRONYMS

AWC	Aqaba Water Company
BOT	Build-operate-transfer
CEO	Chief Executive Officer
GIS	Geographical (or geospatial) information system
GiZ	German Development Cooperation Agency
GOJ	Government of Jordan
HQ	Headquarters
IA	Institutional Assessment
ISSP	USAID Institutional Support and Strengthening Program
JD	Jordanian Dinar
JISM	Jordan Institute of Standards and Metrology
JRSP	Jordan Red Sea Project
JV	Jordan Valley
JVA	Jordan Valley Authority
KPI	Key performance indicator
KAC	King Abdullah Canal
MDG	Millennium Development Goal
MWI	Ministry of Water and Irrigation
NWC	National Water Council
NRW	Non-revenue water
NWMP	National Water Master Plan
O&M	Operations and Maintenance
PMU	Performance Management Unit
PPP	Public-private partnership
SCADA	Supervisory control and data acquisition (system)
USD	US Dollar
WAJ	Water Authority of Jordan
WSAU	Water Sector Audit Unit
WUA	Water User Association
WURC	Water Utility Regulatory Commission

1 EXECUTIVE SUMMARY

The Institutional Support and Strengthening Program (ISSP) is a USAID funded program to support the development and restructuring of the water sector in Jordan, to better meet the challenge of managing Jordan's scarce water resources.

From February to June 2011 ISSP carried out an extensive institutional assessment of the sector, reviewing responsibilities of the Ministry of Water and Irrigation (MWI), the Water Authority of Jordan (WAJ), the Jordan Valley Authority (JVA), and the corporatized utilities who provide retail water services to consumers.

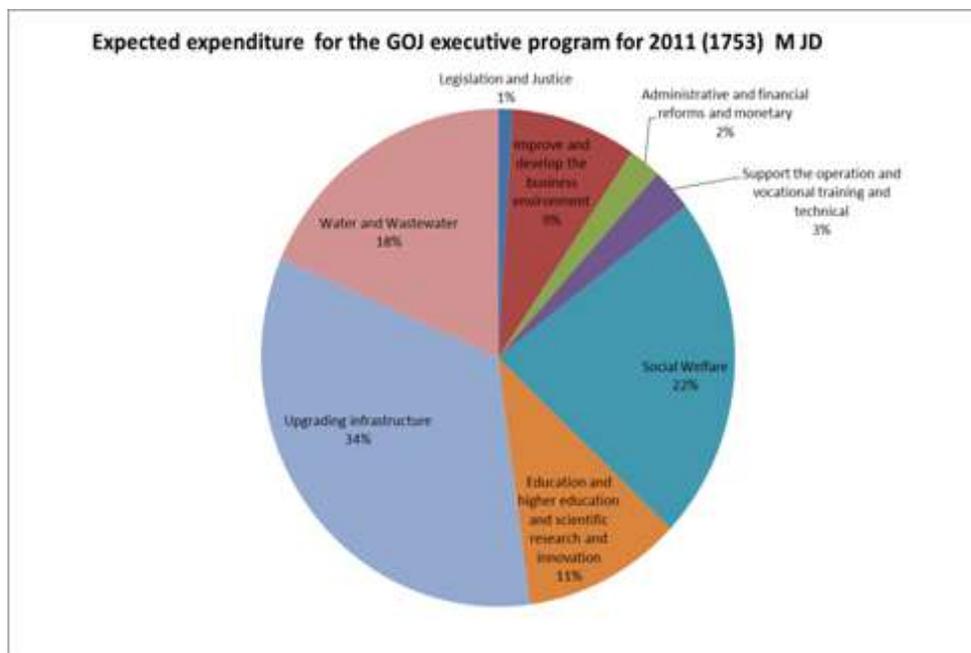
The assessment was built on the larger body of existing work on Jordan's water issues, consultations with key stakeholders throughout and independent analysis as needed. Three sets of changes in Jordan's institutional architecture for water are recommended from this assessment:

1. **Sector restructuring** to:
 - a. Consolidate water resource planning and management in the Ministry of Water and Irrigation (MWI);
 - b. Create a top-level National Water Council (NWC); and
 - c. Focus the Water Authority of Jordan (WAJ) on bulk water supply development and distribution.
2. **Water utility reform** to:
 - a. Complete the process of corporatizing utilities;
 - b. Improve governance and management
 - c. Create an independent Water Utility Regulatory Commission (WURC) to oversee the economic and customer service aspects of fully corporatized utilities.
3. **Water User Association (WUA) strengthening** in the Jordan Valley leading to a shift in tertiary-level water management from the Jordan Valley Authority (JVA) to locally-based WUAs.

Several intractable problems currently confront Jordan and its water sector. The most fundamental of these is the very limited quantity of renewable water resources available to the Kingdom. As noted in the Water Situation in Jordan report of The Ministry of Water and Irrigation in 2009 annual per capita water availability had declined from 3600m³/year in 1946 to 145m³/year in 2009. This problem also emerges, in financial terms, as a large and burdensome annual draw against the national treasury as subsidies are provided by the Government of Jordan in order to maintain low tariff rates. Recurrent

water sector costs constituted about 5% of the 2010 national budget and 17% of the 2010-2013 capital investment program. Finally, the only options on the table for producing completely new supplies of raw water are dauntingly expensive – running to just under 1 JD per cubic meter for water from the Disi aquifer, and more than 2 JD per cubic meter for desalinated water (including bulk transportation costs).

Fig 1.1 A substantial part of Governments budget is allocated to water and wastewater
(source: Expected expenditure for the GOJ executive program for 2011)



There are, however, several ways to mitigate the problem of matching the available supply of water and the competing needs for it including:

- demand management;
- reduction of leakage and billing losses in urban and agricultural systems;
- raising the productivity of water used in agriculture—measured as JD of output produced per unit of water consumed;
- reallocation of water among uses;
- re-use of treated wastewater.

Jordan has embarked on some or all of these solutions to differing degrees, and this work needs to be continued, but experience has highlighted a common need for a rational and effective institutional structure from which coherent management solutions can be launched and sustained.

A number of problems characterize the current institutional structure of water governance and management in Jordan including:

- overlapping mandates and separation of related functions, particularly between MWI and WAJ;
- conflicts of interest between different organizations, particularly between WAJ as a bulk water supplier to the water utilities, and simultaneously as an owner and regulator of the same utilities,
- hidden and distorting subsidies, as in the case of below-market electricity tariffs and deferral of asset maintenance in utilities;
- incomplete corporatization of utility governance and management, whereby utilities sometimes experience the worst features of both public and private sector status;
- flawed accountability and incentive systems, as with tariffs levied for both urban and Jordan Valley surface water;
- an overly narrow political foundation for serious debate and decision-making for water policy.

This Institutional Assessment (IA) Report presents the findings of that analysis. Following a process of review and revision involving USAID, MWI, and other important stakeholders, the ISSP will provide ongoing assistance over the next three years to support implementation of the agreed-upon institutional changes. Several important principles guided the IA. These are:

- the importance of incentives and accountability in reforming organizational governance arrangements and management practices,
- the need to minimize or eliminate structural conflicts of interest in relationships among organizations,
- the importance of transparent and broadly based decision-making in setting water sector policy, and
- the importance of crafting institutional arrangements that are robust and not overly dependent on incumbency.

The IA has resulted in an integrated package of recommendations for three sets of changes in water sector institutional arrangements as mentioned above, comprised of the following six critical reforms.

1. Consolidate water resource planning and management functions in MWI. This will strengthen and unify the Ministry's capacity and authority to implement its water resource-related functions.
2. Establish a broadly-constituted top-level National Water Council to review and advise on water policies prepared by MWI. This would create wider cross-sectoral acceptance and support of the policies, thereby insulating MWI from the intense political pressures which surround water permitting, enforcement, and allocation decisions.
3. Refocus the mandate of WAJ on bulk water source development and supply of treated water. This will eliminate conflicts of interest in its dual roles as a bulk water supplier to utilities on one hand, and as owner and regulator on the other.
4. Complete the corporatization of existing water utilities, and establish new ones to cover all communities in Jordan. Corporatization of the major water utilities will enable them to achieve the full potential efficiency benefits of a private sector performance ethic, leading to improved service delivery.
5. Establish an independent Water Utility Regulatory Commission (WURC) to oversee the financial and technical performance of the fully-corporatized water utilities. This will provide the strict independent oversight of the utilities required to drive improvements in financial efficiency and service delivery, identify tariff and off-setting subsidy levels and protect the interests of Government.
6. Establish WUAs to cover the entire irrigated area of the Jordan Valley and build their capacity to manage and fund tertiary-level water distribution. This will focus delivery of irrigation water at local level, increase income to JVA and improve the distribution network as the farmers themselves will be involved in managing these assets. It will therefore relieve JVA of the often-difficult and contentious problem of water delivery to individual farms below JVA system outlets. It will also help pave the way for a comprehensive reassessment of the future role of JVA in the Valley.

The detailed road map for implementing the proposed reforms will be discussed and agreed between the Ministry, USAID and ISSP. As agreement is reached on the specific steps and timing of the activities, ISSP will support implementation and undertake capacity building within these institutions throughout the life of the program.

Reforms can be divided into three phases with the details of each being developed in the action plan:

- Phase 1 – Preparation, including detailed action plans, legal processes, capacity building.
- Phase 2 – Implementation including restructuring of MWI and WAJ, further corporatization of utilities, establishment of new bodies, capacity building, development of processes and procedures, development of a new water law.
- Phase 3 – Consolidation and continued development of the new structures.

Phase 1 is expected to be relatively short in duration with Phase 2 completed within the lifetime of the ISSP project. This will lay the foundations for and achieve significant progress towards the successful restructuring of the sector. Some aspects of the Phase 3 consolidation will be able to be started within the ISSP project timescale.

These proposals raise questions in relation to future ownership of assets, the allocation of existing functions including laboratories, workshops and the well drilling unit, management of capital investments and the longer term role of JVA. These are important technical issues that need to be examined in detail and options prepared for further discussion. ISSP anticipates that these issues will be addressed in the early stages of the implementation phase.

All of the proposed reforms will require either administrative action or legislative change to implement. These changes will be undertaken in three stages. In the first stage, changes which can be accomplished administratively, such as reassignment of functions by WAJ to MWI, will be carried out. In the second stage, amendments to existing laws and By-laws will be prepared which will put in place the structures and powers needed to realize the permanent new organizational structure. Concurrently with this work, the body of amended water legislation will be reviewed and a new comprehensive water law will be drafted to provide a unified and coherent legal framework for the sector.

Successful implementation of this package of reforms would be a significant and important accomplishment for the country. Expected outcomes include decreased conflict among water-using sectors, reduced water losses and unbilled water, increased cost recovery, a reduced burden on the national budget and improved and more efficiently water services provision. The proposed reforms are challenging, but are well within the demonstrated capability of the many highly skilled water professionals in the sector and the Government of Jordan to execute. The ISSP stands ready to support this critical undertaking.



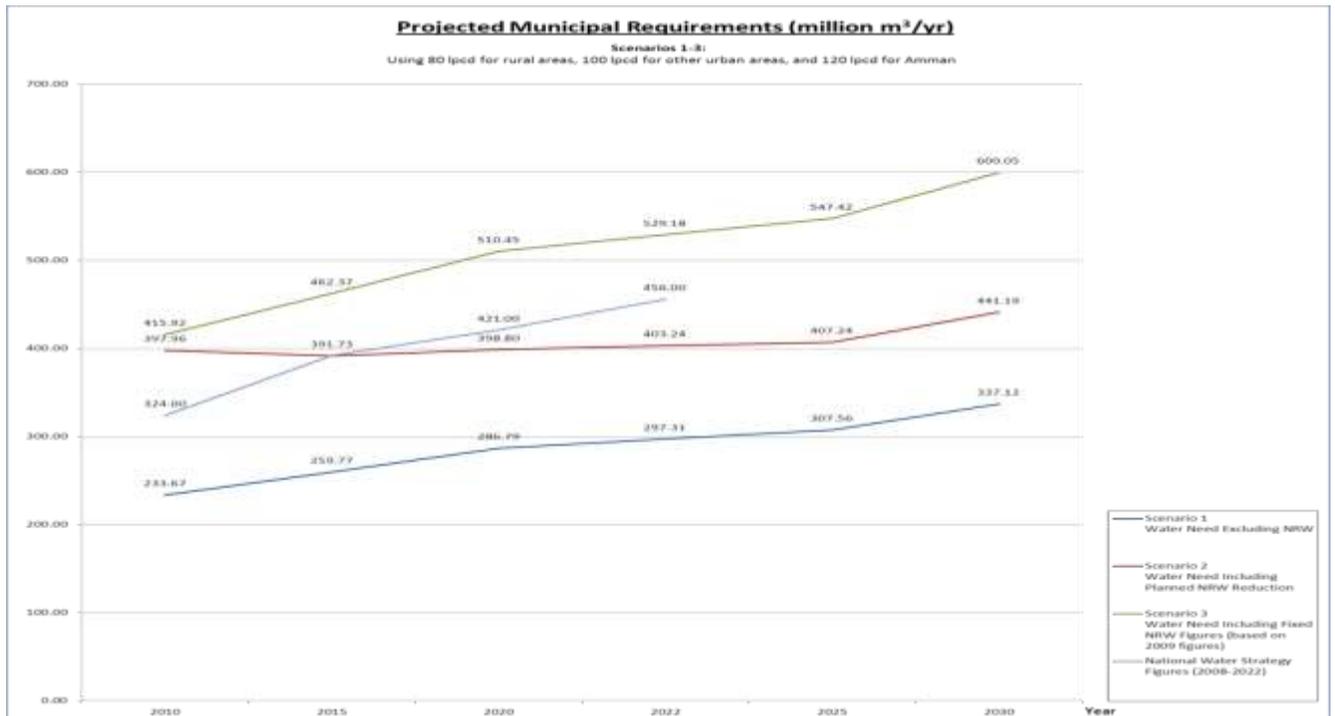
**KAC near Wadi Al Arab Dam Pump Station /North Jordan Valley
(ISSP Site Visit, 29 June 2011)**

2 BACKGROUND

INTRODUCTION

Jordan is one of the ten most water-stressed countries in the world and is endeavoring to mitigate this serious problem through improved control and use of water resources, better demand management and reducing losses throughout the entire production and delivery cycle. The USAID/Jordan Institutional Support and Strengthening Program (ISSP) is designed to address the widely-held view, as indicated in numerous reports (Annex 2: Bibliography) that current institutional arrangements for managing Jordan's water resources are not adequate to the challenge of the country's long-term, strategic problem: addressing a serious imbalance between sources of water at affordable prices and the demands of a growing population (see graph below) and an expanding economy. In responding to this challenge ISSP builds upon an already impressive volume of work that has been carried out in constructing water sector infrastructure and strengthening sector management to best meet the challenge. An Institutional Assessment (IA) was carried out from February – June 2011 to analyze the institutional framework of the water sector and determine the critical reforms needed to strengthen and improve water sector management. The results of this assessment are presented here.

Fig 2.1 There is increasing demand for limited water supply



ISSP will work closely with Jordanian water authorities to develop the “transition plan” which will detail the specific next steps required to support the water institutions and utilities to implement the IA results. This is what differentiates the ISSP assessment from previous work as shown in (Annex 2: Bibliography) in this area – our “assessment” does not stop at a list of recommendations. ISSP is a three-year program that will work in close partnership with USAID, the Ministry of Water and Irrigation (MWI), the Water Authority of Jordan (WAI), the Jordan Valley Authority (JVA), water utilities, relevant ministries and Jordanian government institutions, other donors, Jordanian experts, and public and private sector organizations to facilitate and support this sector transformation and strengthening effort.

RATIONALE FOR INSTITUTIONAL REFORM

Jordan’s economic future and social stability are threatened by persistent problems in the water sector particularly the decreasing volume of available water as identified in (Annex 1: Jordan Water Balance Projections to 2030), and the increasing costs of abstracting and transporting an already scarce resource across the country. The costs to the Kingdom are no longer acceptable. The financial cost of developing new sources of supply is much higher than current water supplies and the government will be hard pressed to afford them. In addition, current costs of providing water are a growing and an increasingly severe burden on the nation’s finances. Large budgetary outlays for the water sector, and the unwillingness to recover those costs from existing or new water users through tariff increases, continue to drain the nation’s Treasury. With projected population growth, and with uncertain economic prospects in the region over the coming decade, the harsh fiscal climate in Jordan’s water sector will certainly get worse unless concrete actions are taken.

Current bulk treated water supply unit costs are still relatively low when compared to the cost of the planned and other potential new supplies, but current total costs are still burdensome. Estimates are that between 5% and 18% of the national budget is devoted to the water sector in addition to a wide range of other Government subsidies such as reduced electricity costs. When the Disi pipeline¹ is completed, the unit cost of that bulk water will be more than 10 times the cost that Miyahuna currently pays for its bulk water supplies. New desalinated sea water supply is estimated to cost nearly twice that unit cost, and possibly more depending on future construction, interest rate and energy costs. The World Bank Study and the Jordan Red Sea Project (JRSP) show that desalinated water supplies to Amman will cost at least 2 JOD/m³, even with a big grant component in the JRSP. The up-front costs for either the Jordan Red

¹ Currently scheduled for 2013

Sea Project (JRSP) or Red-Dead projects are estimated at over USD 10 billion. The financial benefits in delaying the development of such new sources are substantial, provided that Jordan is able to utilize its current resources more efficiently during that period.

The necessary solution to these dual threats—burdensome current budget outlays and unaffordable new supplies—is to undertake targeted institutional reforms within the water sector. These reforms concern how water is governed in Jordan and water and wastewater systems are organized. This addresses both the processes by which sustainable water policies are formulated and the processes by which those policies are implemented. While the ISSP is not the first assessment to identify persistent governance problems in the sector, it is hoped that given the growing severity of water problems in Jordan, coupled with ISSP’s support and other donor programs to facilitate reforms, real progress will be achieved.

The ISSP project therefore focuses attention on three main governance components of the sector:

- organizations;
- administrative processes;
- behavioral incentives that arise from these structures and processes.

The concern is that clear rules and plausible incentives are in place to ensure that policy directives will be carried out. The necessary organizational components need to be logically and administratively connected to provide clarity of mission and accountability. Lines of authority must be clearly spelled out and followed. Incentives need to be carefully structured to motivate management and staff and reward good performance in addition to strengthening demand management and reallocation, together with consideration of further resource exploitation which is likely to be very costly. As such, a proper diagnosis of the water sector must be concerned with both organizations and processes—structure and function. Jordan’s population has shown that it will adjust to physical scarcity but there is little tolerance for scarcity that is perceived to be the result of flawed policies and dysfunctional administrative processes.

INSTITUTIONAL ASSESSMENT PRINCIPLES AND PROCESS

There are several core principles underlying the IA:

- Institutional reforms need to create more powerful incentives and mechanisms for better and more efficient water sector performance.

- Efficient utilization of existing water supplies must be linked with decision-making on new supply options in an integrated policy making and strategic planning process.
- Policy and allocation decisions must be more transparent and involve a broad range of key stakeholders.

The IA team extensively analyzed and built upon the large body of experience, work, assessments and other studies carried out to date on water issues in Jordan (Annex 2: Bibliography and Annex 3: Annotated Bibliography of Key Materials). It also critically examined the institutional arrangements and governance structures and systems now in place. This process helped to identify the factors underlying the key constraints and barriers—legal, regulatory, structural and operational—to optimal management of scarce water resources. Institutional arrangements and governance structures and systems now in place for the key institutions were assessed, especially for strategic planning; water abstraction and production, water allocation, distribution and protection; management, quality and quantity monitoring, infrastructure investment, and operations and maintenance (O&M).

The team reviewed the specific mandates and functions both within and among the key water sector institutions. This was used to help determine where there is need and realistic opportunity for reorganization, realignment, restructuring or changes in approach and/or systems to better enhance efficiency, equity, and transparency objectives, and to assure clarity of responsibilities. The recommendations presented below were then developed in the context of GoJ policy, priorities and intentions for the water sector as informed by regular consultations, the National Agenda, the National Water Master Plan (NWMP), and “Water for Life”.

ISSP recommendations primarily concern changes in the organizational structure of Jordan’s water agencies and utilities. We focus particular attention on the necessary behavioral incentives within and among key water sector institutions to improve the financial performance of all segments of the water sector. We offer recommendations concerning improved licensing arrangements, enhanced enforcement policies and mechanisms, and regulatory approaches. This is accompanied by a legal review which identifies important gaps and limitations in the existing legal framework and highlights the key areas and cases in which existing laws ought to be modified or new laws introduced.

ACHIEVEMENTS

In order to assess how best to keep Jordan's water sector moving forward it is important to understand the progress made to date. The Kingdom has made significant achievements in water sector management, especially in terms of integrated water and wastewater management. Infrastructure improvements over recent years have increased water availability to urban areas and agriculture and improved the treatment of wastewater.

Jordan has made significant achievements in meeting the Millennium Development Goals (MDGs) for water and sanitation. More than 98% of the population are connected to the municipal water systems throughout Jordan and have access to clean water, and about 65% are connected to the sewers network. By international comparisons, Jordan is very advanced in the joint management of water and wastewater. For example, the development of water supply systems to meet the growing demands in Amman was accompanied by wastewater collection and treatment systems to take treated wastewater back to the Jordan Valley for reuse. It is reported that some Jordan Valley farmers prefer As-Samra treated effluent to traditional surface water supplies. This is a major success, as a decade ago the idea of using treated wastewater for agriculture was a "taboo" subject in Jordan.

In the Jordan Valley, the introduction of water users associations (WUAs) since 2001 is a clear success that has resulted in higher efficiency and the perception of greater fairness in distribution. These associations are progressively assuming the tertiary-level water management previously undertaken by the JVA. As of 2010, about 80% of irrigated land in the Jordan Valley is covered by WUAs. Other examples of water use efficiency improvements over the past decade include using treated wastewater from the Wadi Musa and Aqaba WWTPs for non-consumable crop irrigation and industry. This has contributed to the Aqaba Water Company's (AWC's) financial soundness (sales of the treated wastewater blend are at higher prices than domestic retail prices) with increased potable water supply by substituting treated wastewater for potable water and a greater contribute to Jordan's economy by supporting industry.



**Private Desalination Treatment plant at Kufrain/ Middle Jordan Valley
(ISSP site visit, 06 March 2011)**

Possibly the most important improvement in water utility management in Jordan was the corporatization of the Aqaba, Amman and Yarmouk water utilities. AWC is able to deliver mostly continuous water supply to its customers through a relatively new network, using good network management practices and modern technology such as GIS and SCADA. Another important outcome of the AWC's good management practices is achieving the lowest non-revenue water (NRW) percentage in Jordan and at the same time providing a continuous supply. NRW in 2005 was reported to be 27.5% reducing to 21% in 2009 with the average figure for Jordan as a whole being 43.13% in 2009, according to WAJ reports.

There has been recent success in opening up European markets to Jordanian agricultural producers through water sector collaboration with the Jordan Institute of Standards and Metrology (JISM) whereby standards for marketing and good agricultural practices were established. These efforts resulted in a 900% increase in the number of European-certified farms in Jordan since 2003. The water sector

continues to work with JISM to develop plumbing standards and technical regulations for efficient water use. So far, standards for faucet flow rate regulators and toilets have been approved, which will eliminate non-compliant fixtures from the Jordanian market over time.

Other water demand management initiatives include working with small rural communities to encourage them to adopt systems such as rainwater harvesting cisterns and reservoirs, greywater recycling, rehabilitated household water networks to fix leaks, and drip irrigation systems. These good practices are supported through revolving credit funds managed by the local communities (135 revolving credit funds were established that provided 4,050 loans by December 2010), and by promoting citizen participation and increasing understanding among communities on the role that they can play in improving water use efficiency at the local level. Like all efforts aimed at changing Jordanian attitudes to water conservation, the effects have been positive in a few locations, but remain to be scaled up to the macro level.

A start has been made to address the problem of groundwater overuse by establishing and empowering a groundwater monitoring unit within WAJ. Many illegal drill rigs have been confiscated and reportedly almost all of the legal wells in the country now have meters that are being monitored. Although previously illegal wells have not been shut down, they have been licensed to facilitate more effective monitoring and control of abstraction. However, the efforts to date, while necessary enabling steps, have not by themselves resulted in reduced groundwater pumping, an issue that needs to be tackled at the highest levels of the Jordanian government by strict enforcement of licenses.

Despite these achievements, much more remains to be done. Many of the above successes can be considered successful at the pilot scale, but are insufficient to solve Jordan-wide problems because they require behavior and incentive changes as well as funding. Success will increasingly depend on support from the Government of Jordan in a broad sense, as well as from water users and stakeholders outside of the water sector. The challenge for the Government and water utilities is that new infrastructure investments are becoming too costly in both capital and operating costs to continue to provide an easy solution to meeting growing demands. Jordan must look instead at how to realize savings and efficiencies from the existing systems through institutional and structural reforms.

INSTITUTIONAL CHALLENGES

Significant achievements are still to be realized in the areas of demand management, non-revenue water (NRW) reduction, increased water productivity, reallocation and reuse. Each of these areas requires

improved policy setting, different investments, levels of support and capacity for proper implementation. The one thing that they all have in common, however, is that they all require a sound, efficient management and oversight structure to implement them.

The current structure of the water sector is characterized by:

- overlapping mandates, roles and responsibilities;
- conflicts of interest;
- hidden and distorting subsidies;
- previous reforms only partially implemented; and,
- flawed accountability and incentive systems.

The table below highlights the challenges facing the sector

Institutional Challenges	Areas for Improvement		
	Overall Structure	Management and Oversight of Water Utilities and Bulk Water Supply	Delivery of Tertiary-Level Water in the Jordan Valley
Overlapping mandates, roles and responsibilities	X	X	
Conflicts of interest	X	X	X
Hidden and distorting incentives	X	X	X
Previous reforms only partially implemented	X	X	X
Flawed accountability and incentive systems	X	X	X

The IA team identified three main areas in which there are significant institutional challenges that can be addressed by a package of institutional reform, restructuring and support. First is the overall structure of the water sector which currently constrains sound policy development, strategic planning and integrated water resources management. The second area is management and oversight of water utilities and bulk water supply. The third area is the delivery of tertiary-level water in the Jordan Valley.

STRUCTURE OF THE WATER SECTOR

The water sector is currently structured in such a way that essential water-related functions continue to be spread among WAJ, MWI and JVA. This creates several areas in which there is duplication of effort, unclear responsibility for decisions, and poor accountability. Also, due to the way in which MWI was created (through a By-law rather than a dedicated law), it lacks sufficient authority to effectively carry out its water management responsibilities. One result of this is that control of groundwater abstraction is

weak. There are significant conflicts of interest between WAJ responsibilities for bulk water supply and its oversight and management controls over the utilities. Policy decision-making is narrowly-based and focused almost solely within the Ministry. In addition MWI has a conflict of interest due to its dual responsibility for both policy decision-making and policy implementation. There is no viable mechanism for monitoring and follow-up in policy implementation. There is also a lack of good shared data and information to provide the basis of informed policy and management decisions.

MANAGEMENT AND OVERSIGHT OF UTILITIES

The management and oversight structure for utilities, bulk water supply and regulation needs urgent reform that must be addressed through restructuring and institutional support. Currently, most utility service is inadequate – as shown by the lack of continuity of supply, particularly in Amman, and high levels of NRW. Utility operation is inefficient and expensive and yet the asset base is deteriorating because insufficient resources are being allocated to maintenance and upkeep of the systems. There exists a fundamental and significant conflict of interest in that WAJ can exert management oversight and control over the same corporatized utilities for which it is the bulk water supplier. As such, the utilities need to be separated from WAJ ownership and control while creating a mechanism which still respects the government’s concerns over both protecting the large asset base developed and invested in by the GOJ and also with regard to their responsibility for providing an essential public service.

WATER USERS ASSOCIATIONS (WUAS)

In the Jordan Valley, tertiary-level water distribution is inefficient with widely variable local capacity levels. The JVA has been working to devolve responsibility for distributing water among farmers to a set of farmer-based Water Users Associations (WUAs) that would cover the entire irrigated area of the Valley. However, this work is incomplete and needs to become a top priority. There are also concerns that the overall organizational capacity of JVA has not been adequately adjusted for its transition from being a multi-sector regional development organization to a regional water supplier and manager.

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