

# Implementing better water stewardship

Consolidating the fact base, prioritising solutions  
and refining the implementation plan

Ministry of Water and Irrigation  
The Hashemite Kingdom of Jordan



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## **1. EXECUTIVE SUMMARY**

The Ministry of Water and Irrigation (MWI) within the Government of Jordan has recognized water as a scarce resource critical to the future growth of the Hashemite Kingdom of Jordan - a view that is shared by other parts of the government. MWI has requested the 2030 Water Resources Group (WRG), an innovative public-private partnership between the International Finance Corporate, McKinsey & Company, Nestle, Veolia and experts from Harvard University, to prepare a proposal which will bring global expertise in water resource management and solutions to support the water sector in Jordan. The end objective of the exercise will be to prioritise the entire set of solutions available to Jordan and review the current action and investment plans to create a roadmap for implementation of solutions in Jordan.

This exercise is being led by the Ministry of Water and Irrigation (MWI) and has the support of the Ministry of Planning and other influential public and private sector players in the Jordanian water sector.

Over the years, Jordan has been a regional pioneer in water resource management and led through innovations such as licensing and monitoring of tubewells, crop-level quotas, creating companies for municipal water supply, tariff structures for higher irrigation water efficiency, desalination of brackish water and recycling of domestic waste water. The government has also taken the lead in developing "Water for Life" - a strategy document outlining visions and high-level actions for the sector. MWI has further developed a National Water Master Plan and an action and investment plan based on "Water for Life". Besides, MWI has led large supply-side projects such as the Red-Dead conveyor and the development of the Disi aquifer - both of which are critical to meeting Jordan's future water needs.

However, some key challenges remain that need to be addressed in order to ensure a water secure future for Jordan and establish Jordan as one of the global references cases in water resource management:

- Need for a better understanding of future water demand particularly in agriculture, industry and tourism uses. There is a need to build projections for future water demand based on the economic development plans of the Ministries of Agriculture, Industry and Tourism to account for the planned move to higher value crops and development of special economic zones for industry.
- Inefficient water use in agriculture, particularly in the highlands. Water tariffs for agriculture are low and despite policies in place to limit ground

water over-extraction, agriculture in the highlands make inefficient and unsustainable use of scarce groundwater resources. Therefore, there is substantial scope for implementing efficiency measures for agriculture particularly in the highlands.

- Over-reliance of current planning on a few supply-side "silver bullet" projects. While the Disi aquifer and the Red-Dead conveyor projects are critical projects that will provide supply in future, there is a need to integrate the current initiatives under the MWI and implementing agencies - Water Authority of Jordan (WAJ) and Jordan Valley Authority (JVA) as well as programmes by development agencies such as USAID, GTZ, JICA and others to get a complete economic picture of all solution options (both demand and supply-side) at the governorate and national level.
- Need to review the current action plan and investment plan based on the "Water for Life" strategy and other related initiatives to create comprehensive implementation and investment plans at both the central government and governorate levels that address the prioritised supply and demand solutions at the basin level and identify clear accountabilities and time horizons for implementation.

Therefore, this proposal seeks to augment the progress already achieved with a targeted effort to create 1) a fact-base and economic analysis of solutions that all stakeholders can agree upon and 2) an implementation and investment plan at the central government and individual governorate levels that can enable action and tracking of progress in implementing solutions.

The project will seek to particularly address challenges in two areas that are critical to ensuring a sustainable and water secure future for Jordan.

- *Need for focus on agricultural water efficiency* - The overuse of groundwater for agriculture is a particular challenge for the sustainability and protection of Jordan's precious groundwater resources. Despite the average economic returns per m<sup>3</sup> from agriculture being much lower than that from industry, agriculture consumes 65% of Jordan's total water supply while contributing only 2.5% of GDP. Greater agricultural efficiency can improve the return per m<sup>3</sup> of water while ensuring adequate availability for other sectors such as industry, tourism and municipal use.
- *Co-ordinating all stakeholders around a common fact-base, solution priorities and implementation plan.* The water sector in Jordan has seen some innovative work from the Ministry and implementation agencies as well as other stakeholders such as USAID, GTZ and JICA. The implementation of solutions in water also depends on the plans of other relevant ministries such as Planning, Industry, Agriculture, Tourism and

Municipalities and other stakeholders. There is a need to integrate the work done by all stakeholders into a common fact-base on the future supply-demand situation and the analysis of the solution space (covering economic, social and environmental criteria) at the governorate level that all stakeholders can relate to and prioritise. This can then provide a platform for developing a clear and common implementation and investment plan which will enable stakeholders to identify where they can be more effective.

To develop a credible fact-base, economic analysis of solutions and implementation plan that will translate to change on the ground, we propose a project led by the government with WRG support and in co-ordination with development agencies that will follow two sequential phases (this proposal outlines Phase 1)

- Phase 1 will last four months, and will cover all 12 governorates (across 15 surface water and 12 groundwater basins) to
  - Integrate the current data and projections from MWI, WAJ, JVA and projects such as IDARA with the economic plans from the relevant Ministries to develop a comprehensive fact base at the governorate and national levels on the demand-supply deficit that will need to be met over the next 20 years
  - Develop a comprehensive picture of the available solutions at the governorate and national levels to meet the supply-demand deficit using cost-curves as a tool of economic analysis. This will build on current work and pilots being done by MWI and its implementing agencies as well as development agencies such as USAID, GTZ, JICA and others supplemented with WRG's experience in other countries to develop basin level pictures of supply-side and demand-side measures that can be used to prioritise solutions
  - Refine the MWI's current plans by prioritising and sequencing the recommendations on solutions to develop high-level implementation and investment plans with priority areas of action.

The project plan will target the WEF MENA Summit in Marrakesh from 24-26 Oct 2010 to share the initial findings from Phase 1 and the WEF Annual Meeting in Davos from 26-30 Jan 2011 to share the final outcomes from Phase 1.

- Phase 2 will execute the action plans identified in Phase 1. While the set up, length and scope of Phase 2 cannot be defined in detail before Phase 1 is concluded, a number of its elements, such as the change approach, the role of the development agencies and the approach to scale-up, have been outlined.

We believe that the timing is now right to build on the success that the MWI and other stakeholders have achieved in developing the water sector over the last few years. Creating a common fact base that can provide a comprehensive picture to all stakeholders and support prioritisation of focus areas and a commonly agreed implementation and investment plan can provide a water secure future for Jordan and make Jordan a unique reference case for best-practice water management in the Middle-East.

## **2. INTRODUCTION AND BACKGROUND**

Jordan today faces a daunting challenge in the management of its water resources and in ensuring adequate water supply to meet its future growth ambitions. It is among the water-poorest countries in the world with total renewable resources of approximately 900 mcm. The per capita natural renewable resources of approximately 145 m<sup>3</sup> per year is also one of the lowest in the world and a particular challenge to future growth and ensuring an adequate quality of life for its citizens. Water withdrawals in 2009 were 548 mcm for agriculture and 309 mcm for domestic uses - with industrial use, withdrawals are already exceeding sustainable supply. The problem is further exacerbated by the trans-boundary nature of at least part of its water resource: of the 900 mcm available, at least 200 are estimated to be external.

Jordan, however, has a demonstrated track record of ownership and leadership in addressing challenges in water resources - a factor critical to successful sector transformation. It has already achieved substantial progress in putting in place policies to address the dire water situation:

- In 1977, the Jordan Valley Administration (JVA) was set up for development of water resources in the Jordan Rift Valley
- In 1983, the Water Authority law was enacted creating the Water Authority of Jordan (WAJ) assuming the responsibility for water resource administration, management and development
- In 1988, the Ministry of Water and Irrigation (MWI) was set up to provide policy, strategy and planning support to the implementation bodies - WAJ and JVA
- In 1997, the National Water Strategy was developed to outline the overall sector strategy and policies for management of groundwater, utilities, irrigation water and wastewater
- In 2002, specific by-laws were developed to control and monitor the use of groundwater for irrigation and other uses

The Royal Commission for Water developed a high level water strategy for the country in 2009 titled "Water for Life" which outlined sectoral goals for 2022 and approaches to achieve the vision.

On 18 May 2010, a team from the 2030 Water Resources Group - an innovative partnership bringing together private and public sector institutions who support governments in accelerating the delivery of a sustainable, efficient and effective water resource system - was invited to a meeting in Amman with the Minister of Water and Irrigation and senior staff from MWI, WAJ and JVA to discuss how to

accelerate transformation of the water sector and ensure a water secure future for Jordan.

The discussion highlighted the broad set of challenges Jordan faces in managing its water resources - from climate change to rapid growth of urban centres such as Amman, from overexploitation of groundwater resources for agricultural use, to the challenges institutions face in keeping up with these problems. Underlying all of these is the urgent need to get alignment of all stakeholders around a commonly agreed fact base and priorities, and convert the high level strategy and action plan into a clear implementation and investment plan with defined timelines and accountabilities that all stakeholders can engage on.

The meeting concluded that Jordan was well-positioned to benefit from the support that WRG could offer - it has a track record of innovation in water resource management, a critical need where lack of water can threaten its growth prospects and the right leadership commitment to ensure that Jordan can become a regional and global reference case of water sector transformation. The WRG was invited to work closely with the MWI and other stakeholders to understand the current state and requirements in detail to develop this proposal of support.

### **3. CURRENT STATE OF WATER MANAGEMENT IN JORDAN**

Water resources in Jordan are managed by the MWI and its implementing agencies with the MWI responsible for providing strategic direction and enacting policies and WAJ and JVA responsible for management of the resource and provision of services (with the JVA responsible for the larger economic development of the Jordan Valley). Municipal water supply is provided in specific regions by urban water companies - Miyahuna for Amman, Aqaba Water Company and NGWA (to become Al-Yarmouk Water Company) in the northern governorates with WAJ responsible for municipal supply in other regions.

In addition, development agencies such USAID, GTZ, JICA and others play an important role in Jordan's water sector by providing skills and expertise embedded within the Ministry and financing innovative pilots whose results can be scaled up across Jordan.

Jordan has invested substantially in the management of the sector through state-of-the-art tools such as Water Evaluation and Planning (WEAP), Water Information System (WIS), ArcGIS, Evaluation Tool for Investment Planning and Project Information System to ensure availability of current supply data and to support planning of projects.

Information about water resources are collated and managed centrally through tools such as WIS and WEAP. Water budgets are maintained at the basin level

and published regularly. ArcGIS systems are used for geographic mapping and central tracking of all water resources across Jordan. WEAP is also being used to model the impact of climate change in precipitation and analyse the deficits in surface and groundwater resources. Additional tools are being set up to model aquifer flow, water quality and simulate the impact of pricing and allocations on water use.

A National Water Master Plan was created in 2004 that analysed current and historic trends in water use, the current state of the resource, planned projects and key challenges and provided recommendations for improved management. It provided a planning framework to address water uses and projections of demand based on historic data for surface water, groundwater and non-conventional water resources. The NWMP is being currently updated with the focus on refreshing data on current water use as a priority.

In addition, the Ministry has developed a high level action plan and infrastructure plan to address the actions outlined in the "Water for Life" strategy. This plan needs to be converted into a detailed implementation and investment plan at the central and governorate level with clear accountabilities and timelines that can support on-the-ground implementation and tracking of progress.

Jordan has made substantial progress in the use of treated waste water and non-conventional water sources for agriculture. Waste water from Amman-Zarqa region is treated and collected in the Zarqa river where it is diluted with surface water in the river system and stored in the King Talal dam for use in irrigation in the Jordan Valley. In addition, brackish water resources are being exploited using desalination techniques.

Apart from the creation of new supply sources such as the Red-Dead conveyor and the Disi aquifer, Jordan has been working on controlling demand and abstractions of water resources through policy measures such as a cap on the irrigated area, limits on well drilling, abstraction rights for groundwater and monitoring of groundwater use. It has also focussed on demand management through projects such as IDARA which works with the urban utilities to project future demand based on historic trends, assess the scale of non-revenue water, assesses the impact of initiatives such as building codes and faucet changes on water demand and creates economic assessments of demand management solutions.



#### 4. KEY CHALLENGES

Despite the enormous progress in addressing the water challenges for Jordan, some key issues remain that could limit Jordan's ability to ensure a water-secure future.

- *Lack of a robust fact-base on future demand that is aligned with economic plans* - Most of the current projections of future water demand for agricultural and municipal use are based on historical long run data and need to be validated against economic plans of the relevant Ministries. Besides, demand projections for industry and tourism uses need to be developed based on both historic demand and economic plans.
- *Lack of an integrated view of prioritised supply and demand solutions at the governorate level* - While MWI and its implementing agencies as well as development agencies have tested and adopted several innovative solutions to address the challenge of water security, there is need for an integrated view that assesses the entire solution space at the governorate (and national) level with a clear understanding of the relative costs and benefits of the solutions. This will help create consensus among all relevant stakeholders around a common fact-base and prioritise their joint efforts.
- *Lack of alignment of all stakeholders around a common implementation and investment plan with clear timelines and accountabilities* - While "Water for Life" provided a high level strategic direction for the water sector in Jordan, there is a need for an implementation and investment plan that supports and tracks immediate on-the-ground action. Such a plan will need to be developed from the integrated view of the prioritised solutions and will need the alignment of all stakeholders to ensure success of the plan.

#### 5. PROPOSED APPROACH

##### *Principles of action*

Global experience shows that, when approaching the performance of a sector and its possible transformation in a more efficient and effective component of the economy, three common principles apply:

- All transformation processes typically involve greater transparency, a move from a supply-driven system to one that balances supply-side and demand-side solutions, a greater role for users, more intensive use of information and formal decision-support systems.

- The art of reform consists of the definition of a viable transformation process, composed of a series of prioritized, sequenced initiatives that add up to a coherent program of action over multiple years
- Local political leadership is critical to ensuring on-the-ground implementation, sustainability and long run success of the initiative

Besides these principles, each country's transformation process is of course different - depending on natural, political, social and economic circumstances.

A key requirement is that the transformation project will be led by MWI working in tandem with the implementation agencies, other ministries and the governorates with strong support from the development agencies. In addressing the high-priority areas described in the previous section, this project will support a transformation process by providing analytic support and process management. It will accelerate the delivery of an implementation and investment plan and will focus on a prioritized set of activities that can deliver high impact in a relatively short time. If successful, this approach will build momentum for a broader transformation, while also reinforcing credibility for the approach.

This project does not intend to duplicate other work being conducted in Jordan - in fact, it aims to build on the existing work being done by MWI, its implementing agencies as well as development agencies such as USAID, GTZ, JICA and others to bring them together into a comprehensive programme that will help all stakeholders by providing a more coherent view of some of the high- priority issues facing the water sector in Jordan and helping focus execution of priority solutions through a common implementation and infrastructure plan.

Finally, this project is not just targeting better management of water resources. It is focused on delivering a critical enabler for economic growth and ensuring that water plays its role as a key driver for the future growth that Jordan's planned future growth.

#### *Phases of work*

The project will follow two distinct phases:

- **Phase 1** will focus on creating a clear fact base on the water availability gap, identifying the priority solutions for each governorate and development of a high-level implementation plan;
- **Phase 2** will focus on the delivery of a subset of prioritized initiatives and tasks generated in Phase 1. It will try to bring as quickly as possible change,

pilot on the ground ideas, and build momentum towards a more systemic change.

Below, each phase is described in more detail.

### **Phase 1: Developing the fact base and high-level implementation plan**

Phase 1 will last four months and will deliver a set of prioritized tasks that constitute a coherent and prioritized implementation plan to ensure water security for Jordan.

Phase 1 will be divided into a planning period, a diagnostic period, a solution generation period, and an action planning period. Correspondingly, each of these will deliver a specific outcome:

- *Planning period*: This will seek to create the complete project team together with members from MWI and potentially, Ministry of Planning, put in place a detailed and agreed project plan, schedule key milestones and set up diagnostic meetings
- *Diagnostic period*: This will seek to 1) leverage existing work from MWI, the implementation agencies and pilots projects from the development agencies in conjunction with the economic plans from the other ministries to develop a fact-base on water availability gap at the governorate level and 2) leverage the work done by the Ministry, implementing agencies and pilots by the development agencies on solutions with WRG's experience across the globe to identify the complete solution space for priority basins
- *Solution generation period*: Identify of a set of options (infrastructure and institutions) to address the future availability gap identified in the diagnostics and prioritise solutions
- *Action planning period*: Develop a prioritized, sequenced implementation and investment plan with clear milestones and accountabilities.

#### **Planning period**

Phase 1 will start with a planning period of one week, during which the complete project team will be set up and will work with the MWI, other ministries, the governorates and development partners to identify the relevant information needed for the diagnostic period, set up key interviews, agree on relevant sources of data and develop a comprehensive project plan with key milestones agreed.

In this period, it will be important to plan for the WEF MENA meeting in October 2010 and ensure that that project delivers outcomes that can be shared at the meeting to create the impact targeted.

## **Diagnostic period**

The diagnostic period will last nine weeks and will be a core part of Phase 1. It will focus on the following analyses:

### ■ *Mapping of the basin level supply data to governorates*

Our initial analysis based on interviews with Ministry and other relevant stakeholders indicates that the current data collected through the National Water Master Plan, WIS and WEAP provide an acceptable and commonly agreed fact-base on the current water supply in both surface water and groundwater basins across Jordan. However, this data is currently available at the basin level and since the water availability and solution analysis is required at the governorate level, this data needs to be mapped onto the governorates. This activity will be carried out working closely with and leveraging the expertise of the Ministry.

### ■ *Development of the fact-base on future demand*

The objective of this analysis will be to develop the fact-base on the water supply-demand gap for each governorate. Our initial analysis reveals that there are uncertainties around the projections of future demand especially from industrial and tourism uses and the need to ensure that future demand projections are aligned with economic plans from other ministries and the governorates.

This analysis will leverage the economic plans from the Ministries of Planning, Industry and Tourism as well as the governorates to develop 2030 water demand projections from industry and tourism. It will also leverage the economic plans from the Ministries of Planning, Agriculture and Municipalities as well as the governorates, the water companies and projects such as IDARA (focussed on municipal demand reduction) to validate the current projections of 2030 water demand from agriculture and municipal use. In particular, it will ensure that the impacts of planned changes in agriculture (partial move from highlands to the Jordan Valley and move to higher value crops) are well understood and factored in.

The team will then integrate the views of current reliable supply and projected 2030 demand to identify the availability gap that needs to be met in each governorate to provide for planned economic activity and ensure a water secure future. Scenarios will be created to account for the impact of drivers such as climate change and accelerated growth on the availability gap. This analysis requires working closely with the relevant ministries and leveraging their expertise to understand the drivers of demand. The granularity of demand analysis will depend on the availability of economic planning data.

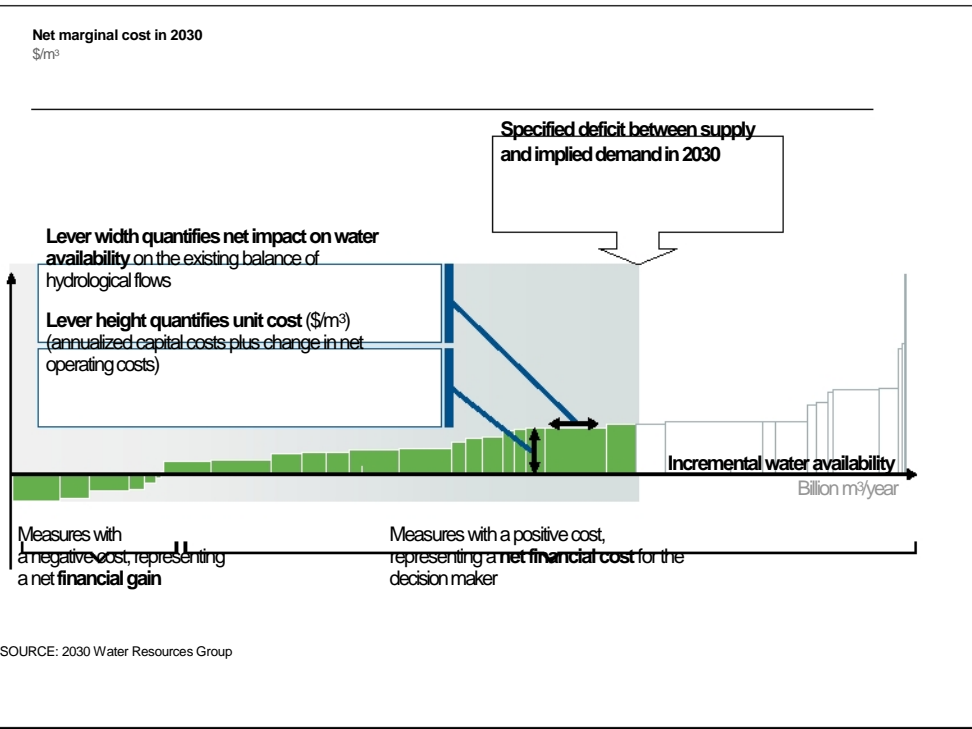
During this process, it will be important to get alignment across all relevant stakeholders (especially MWI and Ministry of Planning) on the baseline and

scenarios. The degree of alignment that can be achieved will depend on the availability of data and some part of the alignment process may need to continue after the completion of Phase 1.

■ *Development of priority solutions for each basin using water availability cost curves*

The analysis will focus on developing a comprehensive view of the solutions available at each basin to meet the availability gap in the governorate. It will provide a structured economic analysis of currently identified supply-side solutions (including Disi and Red-Dead conveyor) and demand-side solutions (including non-revenue water reduction and demand measures recommended by pilot projects) along with solutions identified by WRG from experience in other countries such as India, China, Brazil and South Africa. This analysis will use the water availability cost curve as a tool to rank the identified solutions based on the marginal cost of their water availability and their potential for bridging the availability gap. Exhibit 1 below highlights the use of the water availability cost curve as a tool for economic analysis of the solution space. The analysis will require working leveraging the expertise of the MWI and its implementing agencies as well as the relevant project teams and tools such as the Cost Recovery Model to understand the costs and associated benefits of projects and pilots.

EXHIBIT 1 - WATER AVAILABILITY COST CURVE AS A ECONOMIC DECISION MAKING TOOL



SOURCE: 2030 Water Resources Group

### **Solution generation period**

This period, lasting 4 weeks will respond to the diagnostic period by generating a set of recommendations and tasks that can be prioritized and sequenced to form inputs into the implementation plan. While the detailed recommendations will depend on the outcome of the diagnostics, we expect a set of themes and issue to emerge, for example:

- Recommendations for infrastructure which ensure greater predictability and quantity of water available and recommendations on allocation of water from supply projects such as Disi when completed.
- Focus on demand-management techniques and policies to encourage water use efficiency, particularly for agriculture in the highlands.
- Approaches for better co-ordination between the MWI, implementation agencies and the governorates.
- The development of asset management plans and operation and measurement protocols, for all levels of infrastructure.
- A set of recommendations on the infrastructural and institutional elements which are required.
- Recommendations on tariffs and policy measures to ensure fairer pricing for water withdrawals to ensure that scarce resources are channelled to their most productive use.

This is not a comprehensive list of recommendations, but provides a first impression of some of the key thematic areas the project should touch on.

### **Action planning period**

Finally, the last three weeks of Phase 1 would be devoted to prioritizing and sequencing the recommendations to revise the current implementation and investment plans.

Again, a process of interviews, validation and consultation with key stakeholders will create an initial hypothesis of what the implementation plan could look like. While the MWI is the ultimate decision maker, the participation and buy-in of the implementing agencies, the governorates and the development agencies will be critical to ensuring the success of these plans. These plans will also indentify clear timelines, accountabilities and tracking mechanisms to ensure effective implementation and corrective action as needed.

## Phase 2 Implementation

Phase 1 will deliver a revised implementation and investment plan, backed by significant analytical material, quantitative targets and assessments, and consultations. Phase 2 will take the key recommendations from Phase 1 and launch the implementation program.

While the scope, length, and detailed format of Phase 2 will only be defined at the end of Phase 1, some of the key elements that are likely to govern this phase include:

- ***A change model.*** A fundamental design question for the implementation phase will be what kind of change model will be most suited to implement the key recommendations. Transformation programs that are built bottom up, from a sequence of prioritized recommendations, benefit from the presence of a coordinating entity that is accountable for delivery. A number of questions will have to be resolved, including: which organization holds that role, whether it relies on the support of existing institutional infrastructure or requires the allocation of fresh resources, whether it is limited to a monitoring and supervisory role or acts as a support unit to the individuals accountable for the delivery of individual recommendations,
- ***Participation of development agencies.*** The deployment of recommendations that involve changes at the ground level, involving large numbers of individuals, are a challenge for government institutions with limited resources. Development agencies have a strong track record in supporting water transformation in Jordan by providing financial resources and technical expertise. Inevitably, they will continue to play a role in the implementation, whether through engagement in regulatory and policy design, or in the implementation of specific pilots.
- ***Approach to scale-up.*** Phase 2 will need to balance two competing objectives: ensuring that enough quick wins are achieved to maintain and even expand momentum, against implementing the full action plan. How to approach scale-up and trade-offs between focused impact sub-scale, and broader impact at scale is a critical question for Phase 2. In this, the capacity of the government to mobilize resources beyond its own will be of paramount importance.

## 6. PROJECT TEAM AND WORKING ARRANGEMENTS

The Minister of Water and Irrigation has instructed the MWI to work with a team from WRG, led by McKinsey and the International Finance Corporation to deliver the programme of work described above.

To do so, a working Project Team, managed by a senior appointed official of the MWI, will include a small group of individuals from the MWI, the implementation agencies (WAJ and JVA) and potentially, the Ministry of Planning, working hand-in-hand with the WRG team. The WRG Team will be co-located with the MWI for the duration of the project, and will work closely with the ministry team.

An advisory committee will be constituted, comprising of leaders from the MWI, WAJ and JVA along with key representatives from other ministries and development partners. The advisory committee will meet every 4 to 6 weeks during the course of the 16 week project to review findings and recommendations, and comment on key decisions.

## **7. PROJECT SUPPORT AND FEES**

In order to deliver the scope outlined above, WRG proposes a project team consisting of one project manager and 3 consultants over the period of 4 months. Based on the deliverables outlined the scope of work can be broken into three modules:

- *Assessment of the supply-demand gap at the governorate level:* This module consists of one week of initial planning with 4 weeks of effort to determine the future supply-demand gap (including projections of future demand) for each of the 12 governorates and nationally. The cost for WRG support in this module is estimated at USD 590,000 but WRG is willing to co-invest in the effort to complete the module at reduced fees of USD 350,000.
- *Prioritisation of solutions using cost curves and generation of recommended solutions:* This module will cover a 9 week effort to prioritise the solution space (using cost curves) and generate recommendations on solutions for each of the 12 governorates and nationally. The cost for WRG support in this module is estimated at USD 1.1 million but WRG is willing to co-invest in the effort to complete the module at reduced fees of USD 630,000.
- *Development of implementation and investment plans:* This module will cover a three week effort to sequence the recommended actions into high-level implementation and infrastructure plans at the governorate and national levels with clear accountabilities and timelines. The cost for WRG support in this module is estimated at USD 350,000 but WRG is willing to co-invest in the effort to complete the module at reduced fees of USD 210,000.

The overall Phase 1 effort is planned over 17 weeks and estimated to cost USD 2 million - with WRG's co-investment in the effort, the financing requirements are estimated at USD 1.2 million.



Provided that all aspects of this proposal meet the requirements of the Ministry of Water and Irrigation, WRG is happy to support the MWI in mobilising the resources and funding necessary to begin Phase 1 of this projects as soon as convenient.