

**HIGHLAND WATER FORUM**  
**Policy Recommendation Paper**  
**May, 4<sup>th</sup> 2011**

The following Policy Recommendation Paper was written by the Highland Water Forum Core Group members during the two last forum meetings dedicated to the theme 'Law and Regulations' pertinent to groundwater abstraction. A Mini Core Group (15 persons), whose members were chosen within the last forum meeting (22<sup>nd</sup> of December, 2010) and extended by some additional Core Group members to ensure, that all stakeholder groups are fairly represented, revised this Policy Recommendation Paper (14<sup>th</sup> of February, 2011). During the past weeks, the Policy Recommendation Paper was distributed to all Core Group members by the HWF-Secretariat for receiving their individual and final feedback on the document. The individual feedback of all Core Group members is now included in the document and shown in red. This Paper will be discussed and approved by the Highland Water Forum Core Group in their fifth forum meeting, scheduled on the 4<sup>th</sup> of May, 2011.

## I. Executive Summary

### 1. Introduction

This policy recommendation paper is addressed to the Steering Committee<sup>1</sup> of the Highland Water Forum by the members of the Highland Water Forum Stakeholder Dialogue, otherwise referred to as the Core Group. The paper aims at supporting decision-making and contributing to the development of a just and effective groundwater bylaw that takes into account the interests of all parties involved, resolving the outstanding problems regarding water, wells and land - in line with a vision of sustainable groundwater management of Al-Azraq Basin.

The Highland Water Forum is an initiative of the Ministry of Water and Irrigation that seeks to elaborate and implement a Highland Water Action Plan for sustainable groundwater management. In the framework of the Highland Water Forum, the major water user groups in Al-Azraq groundwater basin meet on a bimonthly basis. Through dialogue, water users, including the farming community and responsible ministries, come together and participate in supporting the decision making process of this precious resource. Four working sessions have taken place since July 2010. So far, the interactive sessions consolidated the members' commitment and enabled them to jointly identify key topics of discussion for sustainable groundwater management. Each theme will be treated individually in a session. 'Legislation and Regulations' was the topic perceived as the most important by the Core Group and was therefore dealt with in the first two content Forum meetings, held in November and December, 2010. The outcomes of these latter sessions were synthesised and formulated in the form of this policy recommendation paper. The paper will subsequently be submitted and presented to the Steering Committee.

The topic of 'Legislation and Regulations' concerning groundwater management addressed the following themes:

1. New farming activities in the Highlands
2. Groundwater abstraction legislation
3. Violations in groundwater use
4. Role alignment and cross-sector coordination among governmental entities
5. Sovereignty of the law, effective law enforcement and good governance
6. Awareness campaigns
7. Management of groundwater resources

### 2. Overview of the Recommendations

The Highland Water Forum Core Group recommends the following to the Government of Jordan:

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<sup>1</sup> The Steering Committee of the Highland Water Forum was chosen and mandated on March 2010 by the Prime Minister and is chaired by HE the Minister of Water and Irrigation. It is made up of the following members: The Secretary Generals of the Ministry of Water and Irrigation, Water Authority of Jordan, Jordan Valley Authority, Ministry of Planning and International Cooperation, Ministry of Agriculture, Ministry of Environment, Ministry of Interior Affairs, Ministry of Public Reform/Mega Projects, Representative of the Royal Court, Representative of the Royal Water Committee, President of Badia Research and Development Centre, Director of the Centre of Water and Environmental Studies of University of Jordan, Representative of Donor Lender Consultative Group, and representatives of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), French Agency for Development (AFD) and the European Union Delegation in Amman.

- *To prevent the expansion of new agricultural areas in the Highlands, taking into consideration the socio-economic feasibility of farming activities.*
- Procedure for measuring the consumed water can be :
  - Alternative1: Introduce a regulation to install meters on all private agricultural wells, regularly follow up the readings, maintain the metering devices, replace the defective ones and dispose of the process of “predicting” the consumption.*
  - Alternative 2: Measuring by donum.
- *To put in place a fair and transparent groundwater pricing system and renounce the predicting procedures.*
- *Alternative 1: To adjust the price of abstracted water and allowable extracted quantities of groundwater for private agricultural use to water salinity; the lower higher the salinity of water the lower its price.*
- *Alternative 2: Salinity should not be taken into consideration in the pricing system.*
- *The designated volume of water per irrigation well should be determined based on clear scientific procedures.*
- To improve the transparency and communication of laws and regulations
- To involve stakeholders in groundwater management
- To put in place a system of positive and negative incentives that rewards those who abide by rules and regulations and penalises those who do not.
- To provide farmers and well owners with clear procedures and regulations related to drilling, operations and maintenance of private agricultural wells (e.g. cleaning, drilling new wells, deepening wells, etc.).To regulate and control procedures of land acquisition and ownership in Al-Azraq region and to resolve the current status of illegally owned lands and illegally drilled wells.
- To align roles of relevant governmental entities and raise the level of cooperation among them.
- To improve governmental services in the agricultural sector.
- To give prominence to the sovereignty of the law and to ensure effective law enforcement
- To raise the public’s awareness on groundwater related legislation and create public discourse on sustainable management of water resources.

## II. Recommendations

### 1. New farming activities in the Highlands

*To prevent the expansion of new agricultural areas in the Highlands, taking into consideration the socio-economic feasibility of farming activities.*

Hundreds of farms are coming to existence every year, and in the past few years the agricultural area expanded in the Zarqa and Mafraq Governorates leading to further over-abstraction of groundwater used for agriculture.

The Core Group encourages the Government of Jordan to contain the existing agricultural area by fixing a maximum area that is allowed to be cultivated in the abstraction license and/or the land ownership deed based on a survey that will show the exact areas of cultivated lands in these governorates. The Core Group also recommends that the Government of Jordan takes measures to prevent new agricultural activities from

emerging and to support and re-enforce the regulation<sup>2</sup> targeted at the freezing of drilling new private agricultural wells.

The Core Group indicated that “new farming activities” does not include farmland that is mentioned in the ownership deed or inactive licensed wells. Hence, a farmer would be able to expand his agricultural activity within the boundaries indicated in his land ownership deed. Also, a farmer would be able to reactivate an already existing licensed well that has not been used for a while, and it should not be counted as a form of new agriculture.

Farms that prove to have a socio-economic public benefit to the local society should be exempted from this recommendation. Naturally, preconditions and procedures for defining the socio-economical feasibility of a farm need to be developed and agreed upon by a specialised committee made up from MWI, WAJ, MOA the farming community, and local CBOs for instance.

## **2. Groundwater abstraction legislation**

### **2.1. The extracted groundwater quantities**

Procedure for measuring the consumed water can be:

*Alternative 1. Introducing a regulation to install metres on all private agricultural wells, regularly follow up the readings, maintain the metering devices, replace the defective ones and dispose of the process of “predicting” the consumption.*

The data on the extracted amounts of water from wells is based on estimation rather than a measurement of the crop and area water requirement. It is therefore argued that the data is not 100% accurate. Close monitoring of the readings as well as regular maintenance and inspection of the metres allow for more stringent controls of violations. They also guarantee an equal and functioning application of the law (cf. Good governance).

*Alternative 2: Measuring by donum. Water consumption per donum can easily be defined by the crop water requirement (distinguishing between tree and vegetable crops). Reflecting the difference between the water requirement of tree crops and vegetable crops (those for vegetables are higher than those for trees) also influences the size of the area that is allowed to be irrigated by one well. For instance, the irrigated area for vegetable crops would be smaller than for a tree crops (for the same well).*

### **2.2. The groundwater abstraction pricing system**

#### **a. Pricing mechanisms**

*To put in place a fair and transparent groundwater pricing system.*

The Core Group recommends implementing a transparent and effective system for measuring the extracted groundwater amounts for agricultural use by using flow meters.

The following remarks should be taken into consideration:

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<sup>2</sup> Decision of Prime Minister in 1992.

- Farms which were legalized ex post should be treated in another way than farms which were legal from the very beginning. License and permit.
- The water tariffs system should be the same for the whole country.

#### **b. Abstracted groundwater salinity**

*Alternative 1: To adjust the price of abstracted water and allowable extracted quantities of groundwater for private agricultural use to water salinity; the lower higher the salinity of water the lower its price.*

The salinity level of groundwater in Al-Azraq Basin increases as private and governmental abstraction continues. The Core Group recommends that tariffs are set in relation to the increase of salinity levels in water (as is the case with brackish wells). The Core Group encourages the clarification of the identification of standards used to set the pricing system for saline water and recommends the Saline Water Guidelines as a reference. *It also calls on WAJ to measure the salinity levels on a regular basis. The change in salinity levels of existing wells should not have any impact on the price of the abstracted water.*

*Alternative 2: Salinity should not be taken into consideration in the pricing system.*

#### **c. The free allowable amount of water per agriculture well**

The Core Group called for making the criteria for determining the gratuity of the allowable amount of water per agriculture be the object of a scientific, accurate and transparent criteria.

The allowable amount of water should be increased.

### **2.3. To improve the transparency and communication of laws and regulations**

The implementation and general acceptance of laws and regulations can be facilitated through a transparent communication strategy explaining their necessity and added-value. A better understanding of the reasoning, **history** and motivation behind laws and regulations can, in turn, also have a deterring impact on the number of violations and tampering of water metering devices (c.f. 3. ‘Violations in groundwater use’).

The gap between water governing authorities (WAJ and MWI) and the farmers need to be reduced by explaining the history regarding the groundwater management of the basin and the role of the different stakeholder groups.

### **2.4. To involve stakeholders in groundwater management**

The Core Group recommends that regulations should be put in place that enforce and regulate the coordination between the different actors of the Jordanian Water Sector (Governmental and non-governmental entities, water users, donor community, etc.) and render stakeholder involvement mandatory by law for governmental institutions. *For example, different stakeholders could be included on the field in the monitoring of meters.*

Moreover, the communication between the HWF Core Group, the Agricultural Associations and Farmer Unions should be increased.

### **3. Violations in groundwater use**

#### **3.1. Positive and negative incentives**

*To put in place a system of positive and negative incentives that rewards those who abide by the rules and regulations and penalises those who do not.*

##### Positive incentives (rewarding measures):

The Core Group insists that those who abide by rules and regulations ought to be rewarded or at least supported in doing so by means of

- Technical and financial assistance for irrigation optimization at farm level (granted that there is a proven reduction in groundwater abstraction, i.e. this incentive should not lead to an extension of new agricultural activity)
- Advice on how to introduce suitable cropping patterns
- Expertise on improved marketing techniques
- Technical assistance for water saving techniques and preservation of water quality
- Financial incentives (such as subsidies) for alternative business ideas, for farmers who opt to phase out of the agricultural sector.
- Reduction of insurance fees for well replacement licences.
- **Reduction of water bills**
- **Cancelation of outstanding water bills**
- **The government should rent wells from farmers for pumping drinking water.**

##### Negative incentives (penalising measures):

The Core Group recommends taking severe measures such as:

- Doubling the cost of water for those who violate the law by illegally abstracting groundwater.
- **Closing wells for certain period of time.**
- Confiscating illegal drilling equipment from those who operate non-licensed drilling machinery/ equipment and **destroy them.**
- **Increase the insurance fees for the driller.**
- **Farmer and driller should be both punished when captured within an illegal drilling procedure.**

#### **3.2. Private agricultural wells procedures**

*To provide farmers and well owners with clear procedures and regulations related to the drilling, operations and maintenance of private agricultural wells (e.g. cleaning, drilling new wells, deepening wells, etc.).*

Clear, well-written and disseminated procedures will reduce the number of violations because more water users will be aware of and understand regulations and adhere to them. The Core Group signalled that many violations occur simply because regulations are not clear to the public.

Examples for this are regulations pertaining to: well cleaning procedures, drilling wells procedures and the procedures of well rehabilitation/ renovation.

#### **4. Illegally acquired lands and illegal well drilling**

*To regulate and control procedures of land acquisition and ownership in Al-Azraq region and to resolve the current status of illegally owned lands and illegally drilled wells.*

Due to easy land acquisition and the shallow water table, a lot of land is currently illegally owned in Al-Azraq area and while agriculture (a heavily subsidised sector in Jordan) is the cheapest proof of investment, the number of farms has mushroomed since the 1990's. The governmental institutions in the water sector are urged to collaborate with the Department of Land and Survey on this subject.

A Committee whose members should be identified (DoL, MWI, MoA, Farmers...) should investigate, assess and establish clear and fair criteria's to define agricultural activities allowed to receive legal land and a legal water abstraction. A specific attention to the "Labourer Certificates" should be taken into account.

These challenges, which are connect to insufficient laws and regulations in terms of land owner ship are very complex, that solutions should be developed on Prime Minister Level.

#### **Role alignment and cross-sector coordination among governmental entities**

##### **4.1. Cooperation between governmental entities**

*To align roles of relevant governmental entities and raise the level of cooperation among them.*

The Core Group calls for more and better coordination among governmental institutions from different sectors in terms of planning, shared goals, and project implementation. The following measures are recommended:

##### Cross-sector committee

The Core Group recommends establishing a permanent, cross-sector committee made up of different governmental institutions (Ministry of Water and Irrigation, Ministry of Agriculture, Ministry of Interior Ministry of Environment, Department of Land, Farming Communities and University etc.). The cross-sector committee could meet on a regular basis in order to ensure that objectives, policies and actions are complimentary. However, cooperation can also be of more practical nature, such as joint data collection and management.

The cross-sector committee can be established at a national and/or decentralized level. This cross-sector committee should be equipped with the right capacities and technologies to enable better cooperation; especially in the field of data collection and management (i.e. provide internet access to speed up internal communication process, provide modern monitoring technology like GIS and ensure capacity to use it).

##### Joint-projects and policies

The Core Group recommends enhancing the coordination between governments in order to ensure that governmental actions are harmonised and do not overlap, avoiding conflicting goal definitions. Better coordination would also allow for an optimisation of efforts as issues could be tackled from different angles, taking into account technical expertise from different institutions. Concerted action can lead to more effective and all-encompassing impacts. In the particular case of groundwater management in Al Azraq Basin, the Core

Group stresses the need for more cooperation between the Ministry of Agriculture and the Ministry of Water and Irrigation.

The Core Group pointed out that joint projects and policies are essential for the sustainable management of resources, especially in formulating work plans for cropping patterns (agricultural products) based on demand from local as well as international markets. Furthermore, this collaboration could lead to a better overview of irrigation activities and more congruent governmental advice on crop suitability in relation to abstraction efficiency.

#### **4.2. Governmental involvement in the agricultural sector**

##### ***To improve governmental services in the agricultural sector.***

Agricultural policies inevitably affect water policies in the Basin region, as most of the cultivated land is irrigated. Improvements to the agricultural sector should address core issues such as market demands, cropping patterns, extension services, control of the labour market, etc.

#### **5. Sovereignty of the law, effective law enforcement and good governance.**

##### ***To provide institutional support to the judicial and executive governmental entities responsible of enforcing the law.***

Governmental entities that are involved in law enforcement should be supported to effectively enforce regulations. Examples of institutional support recommended by the Core Group are:

- Involving law-enforcing authorities (e.g. Police and/or Environmental Rangers),
- Activating the role of the regulatory and operational entities.
- **The WAJ staff need permanently further training on meter installation, maintenance and meter reading procedures. The meter needs to be optimized and cannot be manipulated.**
- Establishing a referral institution for the regulation and control of illegal drilling and other offenses,
- Establishing water courts to resolve water rights, violations and all water-related disputes.
- Including stakeholders in the controlling of violations (peer pressure).
- **So far as possible the farmers should support the improvement of the water consumption monitoring (Solutions should base on a deal/contract, which clearly describes the benefits for both sides).**
- **All drilling rigs should be parked in an area controlled by the Government. WAJ staff needs to accompany the drilling process.**
- **Install a mechanism which ensures the close monitoring of the performance of the law/regulations-enforcement on the ground (implementation of instructions for example in terms of: monitoring, licensing, managing meters etc.) and make the results transparent.**
- **Cooperation with the customs department, to assure that drilling equipment is only entering the country under permanent governmental control.**

Entities that fall under this category are Ministry of Interior Affairs, Department of Land and Survey, Police and Environmental rangers.

##### ***To enforce the current legislation effectively and fairly on all water users without discrimination.***

The Core Group referred to certain occasions where farmers and/or firms were given certain facilitations and/or pardoned from penalties after having committed a violation. The Core Group demands that the

implementation of regulations is done on all farmers alike, regardless of the “leverage” that they enjoy in the community.

*To grant privileges to water user associations in the Highlands.*

The Core Group endorses the creation of Water User Associations (WUAs) in the Highlands and the activation of their role in groundwater management. The Core Group acknowledges that the success of WUA in the Jordan Valley, however that success cannot as easily be replicated in the Highlands due to the different prevailing conditions (open pool resource in the Highlands as opposed to a centralized water supply system in the Jordan Valley). However, a part of the Core Group noted that the possibility of establishing WUA in the Highlands should at least be studied. The advantage of a WUA is that farmers would be responsible for irrigation water distribution and assuring equal water share among farmers through shared well rights. This kind of joint management could only work if farmers were in fact abstracting water from the same source (**shared wells should be introduced**). It was therefore suggested that under a WUA, farmers would abstract irrigation water from one or several shared wells.

## **6. Awareness campaigns**

*To raise public awareness on groundwater related legislation and create public discourse on sustainable groundwater management.*

**The aggregation of farmers in the form of associations, unions and cooperatives should be encouraged in order to increase the exchange of knowledge (improvement of irrigation will be a positive side effect).**

The Core Group believes it is very important to raise the public’s awareness on groundwater related legislations and to create public discourse on the sustainable management of water resources. In doing so, the Core Group suggests a closer cooperation with national media to demonstrate, for example, potential dangers of current water usage patterns. **Public discourse should be institutionalised, for example by a WUA.**

## **7. Management of groundwater resources**

The water balance (the relation between annual groundwater recharge and abstraction) needs to be closely monitored. The Core Group requests regular and transparent information flows on groundwater data, such as the status of the water balance.

The Core Group encourages the GoJ to secure a fair share of water resources in the case of transboundary groundwater aquifers. In the particular case of the Al Azraq Basin, the Core Group requests more regular and transparent information flows through bilateral agreements/negotiations and cooperation efforts with Syria.

### **III. Conclusion**

This policy recommendation paper was elaborated by the Highland Water Forum Core Group members and is addressed to the Steering Committee. It aims at supporting the decision making level and at contributing to the development of a just and effective law. The Core Group strongly believes that this policy recommendation paper can be the beginning of a more open, regular and transparent communication process between the decision making level and the Stakeholder Dialogue of the Highland Water Forum. The policy recommendation paper allows decision-makers to listen to what stakeholders experience and suggest as policy improvements. This is a helpful tool in elaborating socially-acceptable and sustainable policies.

In order to reach sustainable groundwater management in the Highlands through the dialogue approach, the following topics will be tackled in the future Highland Water Forum sessions:

- Water resource management
- Awareness-raising
- Alternative crops and efficient irrigation techniques/ investments
- Local community inclusion
- Information management
- Partnerships and conventions
- Environment

Given that these topics are directly connected to the water Law and Regulations, The Highland Water Forum Core Group shall address the Steering Committee with a new Policy Recommendation Paper in the coming months.

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