

The Azraq Oasis Restoration Project Document

2008 – 2010

Preamble

The here presented Project Document builds on a Strategic Document developed in 2007 for the Azraq Oasis Dialogue. This Strategic Document is the result of an inception Phase that was implemented by IUCN in close consultation with the Ministry of Environment and other key stakeholders at the national and community level. A number of institutional and conceptual issues need further reflection and consultation.

These issues will be dealt with in a Project Formulation Phase. In this Formulation Phase final consultation will take place with all relevant stakeholders on the focus and scope of the project. At the same time approval is sought from the key funding partners (DGCS and WANI).

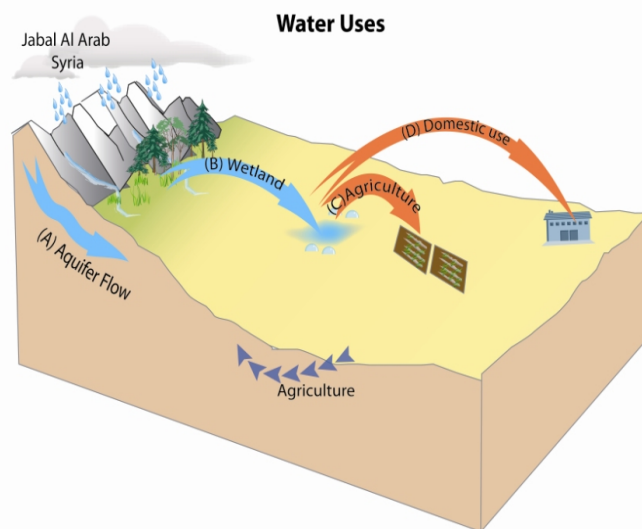
The Formulation Phase will result in a Final Project Document for the Azraq Oasis Dialogue with an intended project period of 30 months (June 2008 – November 2010). The here presented project Document can be considered as a final draft for this Project Document.

1. BACKGROUND

The Azraq Basin

The Azraq basin is one of the most important groundwater basins in Jordan. It is located in the Northeastern part of the country, extending northwards into Syria and southwards into Saudi Arabia. The Azraq Oasis is a large mudflat located in the central and lowest part of the basin, 120 km northeast of Amman.

**The sketch shows the actual water uses for Azraq Basin



There are 12 groundwater basins in Jordan. The Azraq Basin is one of the most water abundant, but ecologically sensitive and heavily used, providing a major share of Amman's municipal water supply.

Topographically, the basin is concave and is described as the *Azraq Depression*. The elevation ranges from a high of 1,350 meters above sea level to a low of 500 meters above sea level, which constitutes the lowest point at Azraq. The basin has an area of 12,710 km², where 94 percent belongs to Jordan and 6 percent to Syria.

The Azraq basin forms the largest resource of good-quality ground and surface water in northeastern Jordan. The water quality, resources and borehole yields in other Jordanian aquifers, such as in the Sirhan and Hammad basins, are all inferior to those in the Azraq basin. To illustrate, the sustainability resource of the Hammad basin was estimated to be nearly 5 times less than Azraq, and the North Sirhan basin 16 times less. Although these basins are not over-abstracted, the aquifers are generally only capable of producing local supplies of water for livestock and irrigation.

Azraq basin consists of three aquifer systems: the upper shallow fresh water basalt aquifer (the target aquifer of extraction) is currently under the threat of salinization due to overexploitation, the middle limestone brackish water aquifer (600 to 15,000 mg/l) of ages more than 30,000 years and the deep sandstone aquifer which has low yields and poor quality water. The pattern of water-flow indicates that the velocity of groundwater flow from the recharge area to the springs in Azraq Oasis is very slow. Recent studies have shown that the groundwater in the well field about 3 km north of the oasis is between 4,000 and 20,000 years old.

The Azraq Oasis

The Azraq Oasis, or Azraq Wetlands Reserve, is a unique ecosystem in a fragile environment, lying at the heart of the Azraq Basin and recognized as a RAMSAR Site. Oasis is the fertile tract of land that occurs in a desert wherever a perennial supply of fresh water is available. Oases vary in size, ranging from about 1 hectare (2.5 acres) around small springs to vast areas of naturally watered or irrigated land. Underground water sources account for most oases; their springs and wells, some of them artesian, are supplied from sandstone aquifers whose intake areas may be more than 800 km (500 miles) away. The Azraq area contains a wealth of biodiversity and habitats, and the richest habitat of all exists in its wetlands. Despite its desert location the oasis contains a variety of habitats and micro-habitats that are found only in wetland environments, which are extremely rare in the region.

Until recently, the Azraq Oasis was an outstanding example of an oasis wetland in an arid region, with few parallels. The oasis was especially important for migratory birds, with up to a million birds utilizing the area during the course of a single spring migration. The diversity of habitats attracted a multiplicity of organisms that are extremely tolerant to the desert conditions, forming one of the most unusual ecosystems in the world, identified as an "Important Bird Area" by BirdLife International.¹ The Directory of Wetlands of International Importance stated that the Azraq Oasis is among the only of the few wetlands of this arid country regarded with international importance due to its outstanding example of ecosystems characteristic of areas where surface water marshes are actually available in semi-arid regions. The unique fresh and saltwater communities support numerous hydrophytic plants, largely restricted within Jordan to Azraq and are of major importance to raptors and waterfowl on the Palearctic-Ethiopian migration routes, and are also a breeding site for some 70 bird species.

¹ IUCN et. al., year.

At least 33 species of waterbirds are known to have bred in the wetlands, and as many as 347,000 waterfowl have been recorded in mid-winter. The Azraq Wetland Reserve has a wealth of diversity, with a variety of species found during the field investigations of all hierarchical classification forms, starting from the unicellular algae (phytoplanktons), such as *Bacillariophyta*, *Cyanophyta*, and *Chlophyta*. Investigations carried out by the Azraq Conservation Project managed by the RSCN (see section V below) suggest that some species of algae found under the main divisions of phytoplankton may be new recorders to this area, including 13 species of zooplankton.

Three major sub-ecosystems exist in the Wetland Reserve: a lake ecosystem with fresh waters; a marsh ecosystem with moderately saline waters and soils; and the *Qa* mudflat ecosystem, which now has highly saline waters and soils. Distribution of flora, fauna, and aquatic species varies according to each habitat.

The freshwater ecosystem is an outstanding habitat, containing a variety of animal and plant species. A recent project study revealed the presence of 12 new aquatic plant species and logged 20 species of aquatic insects, 11 of which were considered new to Azraq. Field research recorded a total of 209 species of birds, including the *Ciconia nigra*, *Circaetus gallicus*, *Circus aeruginosus*, *Chettusia leucura*, *Caprimulgus aegyptius*, *Rhamphocoris clotbey*, *Eremalauda dunni*, *Oenanthe moesta*, *Acrocephalus arundinaceus*, and *Acrocephalus melanopogon*.

The marsh region surrounding the pools also contains high diversity, which proliferated as a result of restoration efforts. The third sub-system, the *Qa*, is barren and unproductive, but beautiful with its floor spread of scattered basalt rocks. The flora survey conducted by the Azraq Conservation Project revealed terrestrial plant communities comprise a total of 133 species of vascular plants, belonging to 100 genera and 33 families. Moreover, seven species were recorded as new to the flora of Jordan and unique to the Azraq Oasis. The importance of this wetland site is underscored by the interaction of the three sub-system habitats. The lack of ecological barriers among these different sub-systems allows for the species to occupy their respective niches without restrictions.

According to Birdlife International guidelines, the area includes 9 out of the 27 important bird areas in the country.² Shared between Jordan and Syria, Azraq is of regional and international importance for not only its behemoth ecological value, but also for its water supply, and cultural, historical, and social significance. All of these aspects contribute to its potential as a dynamic tourist venture, which is currently being implemented strategically with an emphasis on education, adventure, and travel to the multiple linked attractions in the area could very possibly create a fourfold win-win situation for the country's environment, economy, historical preservation and inhabitants both of Azraq and of Jordan at large.

However, the oasis is under severe pressure and ecosystems are in a far stage of degradation. The main cause of the destruction of the Azraq Oasis in the last twenty years is the overexploitation of its basin, which is the third most plentiful in the fourth most water deprived country in the world. During the 1970s and progressively thereafter, agricultural activities began to ignite in the Azraq area, leading to high extraction levels now 3 times that of the sustainable yield.

With few water source alternatives and insufficient extraction management, major adverse environmental impacts have ensued. The springs have dried up, the aquifer's water deficit has reached over 40 million cubic meters (MCM), and a myriad of exotic plant and animal species have ceased proliferation and migration to the area – without another refuge of matched value to seek.

2. RATIONALE/Problem Analysis:

Degradation of the Azraq Oasis has self-perpetuated, as spillover effects are carried over with each factor of exploitation. The intensive pumping carried out through the last 20 years has caused a lowering of the basin's water table, which in turn incited the increased salinity of area's soils. Over-extraction also led to the drying up of the springs in 1993, spurring wildfires across the increasingly dry environment. The lowering water table of the basin, in turn, has encouraged deeper excavation of wells that once provided large outputs of water for irrigation, which contribute to lowering and degrading the water table even further.

Increasing demands on the limited water supplied of Jordan have led to excessive pumping of underground and surface water and a decline in its quality. The results are a lower water table, increased salinity, dried-out ponds a general decline in biological systems, and even less secure water supply sources in the up-and-coming decades.

The Azraq basin is the second most pumped aquifer in the country. As a result, the aquifer's safe yield is exceeded by 260% (table 1. below). To safeguard future supplies of fresh water, it is necessary to consider the impact of these abstraction rates and their sustainability.

Table. 1 2006 Water Balance for Jordan's top 3 most abundant water basins, Supply in terms of Yield, Safe Yield, Unsustainable Over-Extraction, and Percent Excess of Sustainable Yield (MCM); Ministry of Environment; Environmental Profile of Jordan 2006.

	Basins	Yield	Safe Yield	Unsustainable over-extraction	Percent excess of Sustainable Yield
1	Amman-Zarqa	138.16	88	-50.16	157%
2	Yarmouk	59	40	-19	147.5%
3	Azraq	62.5	24	-38.5	260.4%

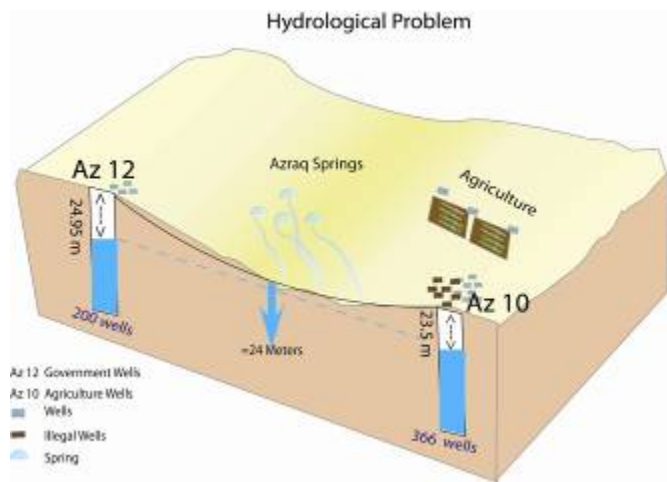
Many aquifers go out of production every year because of the decline in the quality and quantity of their water, as the demand for water increases dramatically along with the population, the problem of water scarcity in Jordan escalates. Thus, over-extraction of groundwater in this desert oasis, one of the most highly used aquifers in the country, is a great hazard for a population whose groundwater supply recharge is vital for meeting water demand yet dependent upon scarce and fluctuating rains.

The over-pumping from the shallow aquifer has resulted in a significant depression exceeding 20 meters on the groundwater table level, which was originally above the ground surface in the form of a marshy

desert oasis. The water quality deterioration is related to the intrusion of brine groundwater from the middle aquifer into the shallow aquifer, prompted by over-pumping disturbances. In addition to the drying of the two main spring systems, the organic soils surrounding the wetland are now completely degraded.

When rocks and boulders are removed and previously natural land is deep-ploughed for farming, many species lose their living space. Agriculture also over-exploits water sources, forcing the species that depend on them to either move or die out. In other cases, ecological changes brought by spreading agriculture have led to increased populations of some species, such as the elapid viper. Moreover, inappropriate agricultural practices – pesticides and fertilizers have contaminated the soils and water sources around farms. Some of the machinery used on marginal lands is also not appropriate for arid conditions as it encourages soil erosion by wind and water. These areas are often used to their maximum potential, and are eventually abandoned once productivity halts. The increase in unproductive lands caused by unplanned agricultural expansion is a significant threat to the Azraq Oasis.

Irrigated agriculture is one of the major consumers of water in the Azraq Basin, demanding over 20 MCM of water per year nearly equivalent to the entire safe yield of the basin, which is 25 MCM per year. Agricultural activities constitute one of the major threats to water sources that must always be monitored, as the water status in the wetlands is affected by any change in the hydrological system within the basin. Azraq Project studies reveal that the area of irrigated farms has increased a thousand fold since the early 1970s. Cultivation is now extensive with over 1,400 hectares of olive groves and orchards and 153 hectares of vegetable gardens now being irrigated from private wells.



The sketch show the hydrological problem of the Azraq Basin

People working mainly in agriculture comprise about 6.8 percent of the Azraq labor force. However, about 47 percent of Azraq residents practice some agriculture, mostly in their own backyards. Of the total land owned, 97.5 percent is managed by the owners themselves.

Other threats to the wetlands of Azraq Oasis have included overgrazing, burning, the dumping of rubbish and hunting. The uncontrolled grazing by domestic livestock in the marshes caused considerable damage to the wetland vegetation, especially in the late 1980s and early 1990s, as the area of permanent marshes dwindled. The aquatic vegetation was regularly burnt to promote growth for grazing. However, all domestic livestock have recently been removed from the marshes. Large quantities of rubbish have been dumped in the Wetland Reserve, particularly in recent years since the perimeter fence has fallen into disrepair.

The Azraq wetlands are surrounded by range lands. This land is the greenest in the region, attracting Bedouins from Jordan and neighboring countries, which use it as a grazing area for their flocks. As a

result, the area suffers from continuous overgrazing. The overall livestock population reached an alarming level (149,000 goats and sheep and around 3,600 camels), posing a major threat to the ecosystem of Azraq as a whole and to the wetlands in particular. These figures do not take into account the seasonal influx of animals brought to the area from as far away as Jafar (180 kilometers to the south), in addition to numerous illegal entries by Bedouins and their animals from Syria and Saudi Arabia. Grazing animals eat and trample plants, preventing many of them from regenerating. Goats are particularly damaging because they strip the bark from trees and consume other plants that wild animals such as tortoises depend on for food. Overgrazing also contributes to desertification, one effect of which is an increase in atmospheric dust. Such dust creates a health and safety hazard to both humans and wildlife. Dramatic increases in farm animal populations are exacerbating this already desperate situation.

Land tenure practices based on inheritance traditions have led to the fragmentation of landholdings into excessively small parcels, which often lie down the sides of slopes. Ploughing these small, sloping fields causes gullying and land deterioration, but attempts to encourage farmers to consolidate landholdings by exchanging plots have not been successful. In addition, more and more nomads are becoming sedentary farmers but are not included in traditional land tenure systems. People with unsure tenure over the land that they farm are unlikely to take a long-term view of protecting and improving that land.

Furthermore there are poor management principles and practices caused by the lack of capacity among stakeholders on the technical knowledge on water management, ecosystem restoration, participatory planning and management, system and problem analysis. Also there are many conflicts and different perceptions among different stakeholders. They do not have a common vision and strategies in addition to a common understanding about the key issues that have led to the critical deterioration of the Azraq ecosystem. There is also conflict in mandates and practices between government agencies like Ministry of Water and Irrigation and the Ministries of Agriculture and Environment.

Action Proposed:

The long and complex process toward rehabilitation requires significant financial resources, close coordination among all stakeholders and wide-based public involvement and support. To have impacts on the ground, a set of urgent demonstration actions should start soon which will serve to build the profile of the rehabilitation and to demonstrate 'quick wins' from investment in oasis restoration that will be highly visible to the people of the basin. The action will be designed to enable development of an integrated plan for restoration and management at oasis level, supported by capacity building, stakeholder dialogue over governance arrangements, and required assessments and analysis. The integrated plan with pilot restoration projects will be initiated at oasis level with clear reference to the proposed pilot in the Inception phase "2007" which will identify and prioritize actions needed to implement basin restoration and to deliver benefits at a basin-wide scale

Action at Oasis:

The proposed project description below on Azraq Dialogue is with period of 30 months (June 2008 – November 2010) as the restoration of the basin is more than 30 years process where the critical success factor will be the commitment of the Government of Jordan and the Azraq community to make the necessary efforts in starting-up restoration of the basin. In addition, the cost of the restoration of the Basin will be lower today than any point in the future, thus saving money in the future.

1. Key stakeholders

This project will be coordinated by a facilitation/planning team at the IUCN WESCANA Regional Office in collaboration with a Coordination Team of the different involved Ministries and with support from the *WESCANA Scientific Advisor (SA)*.

3. PROPOSED APPROACH: DEVELOPING SUSTAINABLE INVESTEMENTS THROUGH STAKEHOLDER DIALOGUE & PLANNING AND SYSTEMIC ANALYSIS

3.1 Lessons learned

Restoration of the basin is possible. Application of an integrated approach to restoration of the basin will not only make it possible to restore the benefits people obtain from the basin and wetland, but it will also provide a framework for sustainable management of the basin in future.

The project strategy builds on the principles of integrated water resources management (IWRM), using results and lessons learned during the first phase, which was funded by InWent and facilitated by IUCN ROWA in cooperation with other stakeholders (MOEnv., MWI, MOA and RSCN), and the lessons and experience gathered from water resource management around the world and in the region (EMPOWERS). Through a capacity building process the project strategy combines development of a restoration master plan agreed by all stakeholders and effective governance structure with concrete replicable actions implemented and demonstrated. This section briefly describes and illustrates the key issues that have been identified in the first phase as constraints to improved water management in the Azraq Oasis:

- The need for an institutional umbrella for the Azraq Forum;
- Little experience with genuine participatory approaches to planning and development
- Little experience / knowledge with systematic approaches / tools to water resource management (simple DSS)
- Difficulties in the enforcement of water and nature legislations and policies;
- Lack of capacities and sufficient awareness on water and nature conservation and demand management practices and integrated pollution prevention systems.
- Little integrated information of water and environmental flows in the basin (interaction of ground water with surface water, etc)
- Limited knowledge in water and environmental economics and its linkages to livelihood;
- The persistence of centralized and top down management is compounded by lack of stakeholders' involvement and fragmentation of responsibilities among many players where

social and political conflicts have raised from the competition on the demand on scarce water resources.

- It needs a lot of effort and time to change the attitudes of the decision makers at the intermediate and national levels toward the work with the local community CBO's and members. In the inception phase, we crossed the first step of breaking the ice and open the dialogue between the two parties.

This project builds on the assumption that stakeholder involvement - particularly at the intermediate and local levels - leads to improved use and management of water resources. Improved management implies taking better account of users needs and engenders collective responsibility for interventions in the water sector. To this end, the project will use a participatory planning cycle for Integrated Water Resource Management (IWRM). This cycle builds on the identification of water-related problems and the development of area specific long-term visions and strategies for water resource development. This strategizing process is supported by the collection and analysis of relevant information on water resources, infrastructure, actors, demand and access. The aim of this planning cycle is to support stakeholders at different levels in making the technical and political decisions to develop and manage their water resources. It is this larger process of participatory analysis, visioning, scenario building and strategic planning that is the real heart of this project and the project will tackle this through an intensive learning-by-doing capacity building process of more formal training workshops and on the spot learning.

The project also is designed to create the institutional and policy conditions under which restoration of a substantial part of the oasis/wetland can become a reality. The project approach will make evident under which policy assumptions and related scenarios such restoration is possible. The approach rejects the a priori assumption that substantial restoration is not possible.

The project proposal described below has found its inspiration in the strategy paper developed in the first phase of the Azraq Dialogue (2007). However, and in consultation with major stakeholders, it deviates from the proposed strategy in several major ways:

- a) The strategic document does not represent an official Azraq Basin strategic plan since it does not have the required national mandate, however, it represents a thorough strategic analysis of the current situation in Azraq basin in terms of the main problems and challenges standing in the way of sustaining its resources, and achieving integrated sectoral development including direct and root causes and their direct and indirect impacts, to produce an extensive reading of strategic alternatives in store for Azraq Basin according to all variables
- b) Exploring all possible future scenarios as a function of the key external factors that may impede achievement of a long-term vision for the Azraq Oasis. These scenarios will determine the strategic alternatives available to agree and adopt a unified strategic vision among all stakeholders.
- c) Developing a more structured participatory planning approach as indicated above, that makes sure that all stakeholders are genuinely involved, especially at the local level.
- d) Producing a proposed action plan which targets strategic intervention priorities to resolve water/basin issues in an upgrading of conventional methodologies ((methods where academic and theoretical or purely technical approaches prevail). See project approach below

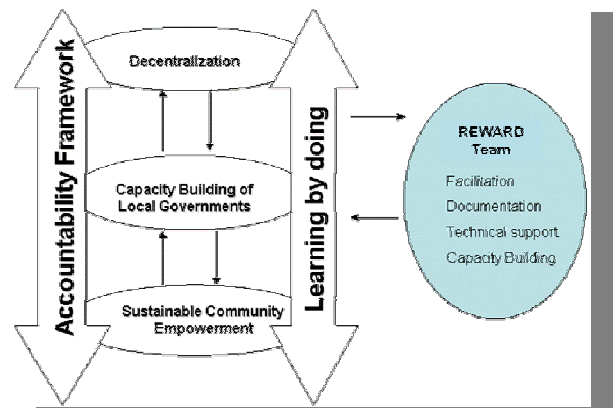
e) Ensuring that all stakeholders at different levels (and especially at the policy level) are aware of the reality of degradation in Azraq Basin in order to assume their responsibilities and ascertain their involvement according to their interest and concern in the basin

3.2 Project approach

IUCN ROWA with the support of the Ministry of Environment proposes to improve the development and management of water resources at the Azraq Oasis by building the capacity of the different stakeholders (including end-users) to increase their participation and representation in planning and decision-making processes. Existing local CBOs would be entrusted with the management and coordination of all activities, while the government institutions at the intermediate level in Zarqa Governorate and Azraq District will be responsible for supporting the project from all aspects, in addition to allocating the funding required for assuring its sustainability. Again this will pass through a process of attitude change encouraged by training and practice.

The project will develop a joint participatory planning framework between all stakeholders at the watershed level, more importantly it will demonstrate how an effective planning relationship can be developed and sustained between local community, private sector and respective Government departments for improved water resource management. The project will be implemented in such a way as to engender trusting working relations that can be used as a model for replication elsewhere.

This project aims to set out an effective framework for capacity building at various levels to improve water resource management, involving collaboration between wide ranges of stakeholders. Sustainability is a central premise if capacity building is understood as being more than simply training, but rather a process of allowing people to have influence over decisions and resources that affect their livelihoods in the long term. Capacity building is to strengthen interaction between levels from national to local and to better define existing and future decision-making roles and responsibilities.



This approach will be used to identify additional and meaningful inputs for longer term restoration of Azraq Oasis. It will put the control of the resource back into the hands of the CBOs and villagers who, together with the government of Jordan will devise longer term plans. This process will also identify immediate areas of rehabilitation and restoration critical for livelihoods. The local people's social adaptive and coping capacity in managing their resources will be significantly improved.

The project will focus on the Azraq Oasis, its valuable wetlands and the direct (agricultural) environment. Where overall ground water dynamics in the much larger Azraq Basin are critical, they will however be considered as an external factor to the ground water flows (recharge/abstraction) in the direct vicinity of the oasis and possible restoration of a substantial part of the original wetland/oasis.

The project will provide the stakeholders with the knowledge and skills to ensure the engagement of all the relevant stakeholders in the management and planning of their water resources and to enable them

to play a major role in the reform process and hence contribute to the restoration and development of the Azraq Oasis and the welfare of the local communities around the oasis.

At the local level, the project will focus on building the capacity of the involved stakeholders mainly the civil society groups in non-conventional capacity building areas and planning approach in order to reach a level of competency within the civil society groups that will allow them to better respond to the actual needs of the community. Capacity building of those groups will provide them with the knowledge and skills that will enable them to play a major role in the reform process and hence contribute to the welfare of the community.

In addition to that, the project will empower the different user groups in the local communities to be able to participate in the decision making process concerning their water resources or at least to be heard from the local government when distributing the services and allocating projects and resources in the area. This process will start by exploring the substantial skills that communities already have and the existence of the ability of innovation through various tools, among these tools PRA and stakeholder analysis.

Community empowerment will be unsustainable if it is not embedded in institutional structures. It is crucial to have linkages between the community and other stakeholders, and community empowerment needs to be accompanied by local government empowerment. It is important to ensure adequate political, administrative and fiscal decentralization. Local government need to have both the authority and resources to plan and coordinate local-level strategic plans and provide local frontline services.

Taking into account the above considerations, the project will focus on two different levels of implementation: The Azraq Oasis for much of the activities on the ground and the Azraq Basin for more systemic analysis of the broader aquifer dynamics

In addition to that, the project will explore the potential use of Decision Support Systems (DSS)³ and other system analysis tools to validate and substantiate more qualitative approaches to planning and decision-making, while giving due attention to environmental concerns and watershed dynamics.

In practical terms, a system tool will be developed that will enable the assessment of the effects in terms of water cycle of several candidate solution options; in this sense, we name it DSS in the sense of a water flow or environmental flow (water cycle) model integrated within an information system that will support decision-making for watershed management. It will be piloted and tested at Azraq Oasis and be used as a basis for the Azraq Oasis Restoration Master Plan which, in turn, will take into consideration additional information elements spanning from the technical, socio-economic, environmental and economic ones.

In the case of Azraq Oasis, critical attention will be given to different scenarios of using groundwater for (a) restoration of the Ramsar wetland site,

(b) Irrigation and local drink water supply in the Oasis area; and

³ A DSS is a tool to support the solution of complex, well to semi-structured problems by suitably organizing relevant information. It multiplies the decision-maker's capability of analysis and evaluation, in some of all the phases of a decision process, by making use of the same elements originally available to the decision-maker (Andrea Nardini, 2006; WESCANA Regional Water Project funded by DGCS/Italy).

- (c) Drinking water supply of Amman City.
- (d) Restoration and development plan for the Azraq basin

"SEE the Attached MAP"

4. Project Description

4.1 Project Objectives and Results

LONG-TERM GOALS

The Azraq Oasis Dialogue Project forms an integral part of the **REWARD⁴** Programme implemented by IUCN WAME Regional office. REWARD is the regional component of the IUCN Global **Water and Nature Initiative (WANI)**. Implementing the Azraq Oasis Dialogue will contribute to achieve the four key WANI Strategic Programme Objectives, as mentioned in the footnote below⁵:

Within the broader Programme Framework of WANI, the Azraq Oasis Dialogue has defined the following long term goal:

A substantial part of the Oasis/Ramsar site restored, while balancing water uses, maintaining ecosystem services and addressing long term access and rights to water by underprivileged groups in the targeted communities.

PROJECT PURPOSE:

Capacities Build in systemic and participatory approaches to planning, restoration, development and management of the restoration of Azraq Oasis, being tested and demonstrated at the intermediate and local level by promoting increased participation and representation of stakeholders mainly end-users in planning and decision making processes (improved local water governance).

PROJECT RESULTS:

Result_1: All relevant stakeholders (GOs, NGOs, private sector, CBOs and end-users) empowered in participatory water resource planning and management and enabled to engage in planning

⁴ REWARD : **RE**gional **WA**ter **R**esources and **D**ryland Programme

⁵ WANI Strategic Programme Objectives:

1. *Security of people and livelihoods enhanced through the demonstration of restoration and sustainable management of water resources and ecosystem services.*
2. *Water management decisions improved through promoting public participation and supporting good water governance.*
3. *Sound public and private investments in water management and ecosystem services justified and promoted through robust economic and financial analysis and appropriate incentives.*
4. *Leadership and learning on sustainable water management and poverty alleviation promoted through targeted capacity development, outreach and network facilitation.*

and decision making and in implementing the master plan and undertake similar activities in the country and the wider region.

Result 2: Systemic analysis tools developed to enhance the communication and information flow between the stakeholders and support the development of the Azraq Oasis master plan.

Result 3: A Master plan designed with all concerned parties for the restoration of Azraq Oasis based on a joint participatory planning framework and supported by a set of systemic tools (possibly a DSS)

Result 4: Pilot projects in the targeted areas developed and implemented to test solutions for the restoration of Azraq oasis - based on the priorities of the stakeholders - – that will pave the way for upscaling when implementing the master plan.

Result 5: information and knowledge acquired in this project shared and communicated at the national and regional level.

4.2. Project Components/Activities

The Project activities are described as sets of consistent Project Components that will contribute in achieving the Project results mentioned above.

Project Component 1: *Empower and enable all relevant stakeholders (GOs, NGOs, private sector, CBOs, large farmers and end-users) in participatory water resource planning and management to engage in planning and decision making and in implementing the master plan and undertake similar activities in the country and the wider region.*

The aim of this component, which is a cross cutting with the others, is to provide the stakeholders with the knowledge and skills to ensure the engagement of all the relevant stakeholders in the management and planning of their water resources and to enable them to play a major role in the reform process and hence contribute to the restoration and development of the Oasis and the welfare of the local communities around it.

Activities:

- Capacity needs assessment: The capacity building stage will start by conducting capacity needs assessment. Capacity needs will be prioritized and it is assumed to include topics in different areas relevant to the project activities such as: networking, management, advocacy, participatory planning approaches, stakeholder analyses and stakeholder dialogue and concerted action.
- Formal training sessions and hands-on learning by doing. Use will be made of the EMPOWERS Approach to Water Governance (Guidelines, Methods and Tools).

"The stakeholders' representatives at different levels will participate in all project stages and activities in order to develop their interest and provide them with an

opportunity to take ownership of the process. It will also offer an opportunity to build their capacities in water planning methodologies and techniques, ensure their agreement for understanding of the project approaches (problem tree analysis, stakeholder analysis, water resource assessment (data collection and analysis), scenario building, ...), and engender their active and real participation in all the activities."

" The project will focus on building the capacity of the involved stakeholders mainly the civil society groups in non-conventional capacity building areas and planning approach in order to reach a level of competency within the civil society groups that will allow them to better respond to the actual needs of the community. Capacity building of those groups will provide them with the knowledge and skills that will enable them to play a major role in the reform process and hence contribute to the welfare of the community."

- Plan for a study tour for key stakeholders and policy makers for global experience in water dialogues (exchange experiences with other countries like Morocco and Spain...)

Project Component 2: Develop Systemic analysis tools to enhance the cooperation and information flow between all stakeholders and support the development of the Azraq Oasis master plan.

Activities:

- Explore the potential use of Decision Support Systems - DSS and other system analysis tools to validate and substantiate more qualitative approaches and decision-making
- Explore to what extent use can be made of the earlier efforts in developing Decision Support Systems (DSS).

Develop system tools (if practical a DSS) to capture environmental flows (water regime) around the Azraq Oasis, taking in to account the need to restore (partially) the RAMSAR wetland and tabstarction of ground watre for drinking water of Amman and agricultural and domestic water use in the Oasis area. Indeed in the case of Azraq Oasis, critical attention will be given to different scenarios (supported by systemic tools) of using groundwater for (a) Restoration of the Ramsar wetland site, (b) Drinking water supply of Amman City; (c) Irrigation and local drink water supply in the Oasis area, and (d) Restoration and Development plan for Azraq Oasis. Build capacities in use of systemic analysis tools.

Project Component3: Design a Restoration and Development Plan with all concerned parties for the rehabilitation of Azraq Oasis based on a joint participatory planning framework and supported by a set of systemic tools (possibly a DSS)

Activities:

- The Azraq project will work on developing a restoration master plan for the Azraq Oasis in close cooperation and coordination with all stakeholders at different levels based on the local communities needs and taking into consideration the perspective of other stakeholders.

The project will use a participatory planning process for water resource planning and management. This process builds on the identification of water-related problems and the development of area-specific, long-term vision and strategies for water resource development. This strategizing process is supported by the collection and analysis of relevant information on water resources, infrastructure, actors, demand and access. The process will use scenario building to incorporate the uncertainty of the future by considering a series of different scenarios on the basis of a number of critical external factors that will affect the achievement of the long-term goal of the project. The logic of the scenarios and the resulting policy and technical decisions to be taken will be tested by making use of the systemic tools mentioned under Result 2. The aim of this planning process is to support stakeholders at local and intermediate levels in making the technical, policy and political decisions to develop and manage the water resources available for the Azraq Oasis. It will use planning guidelines developed recently in an EC funded regional project (EMPOWERS).

Capacity building in the use of a number of tools, particularly problem trees, visioning and scenario building will be instrumental for the 'buying in' of key-stakeholders and in the sharing and structuring of ideas. It will prove to the government officials that it is possible and effective to discuss such issues openly and across institutional boundaries.

- As a result of this stakeholder/planning process, a master plan will be developed and endorsed/approved by the government directorates for Azraq oasis.
- The local communities' representation will be able to be the task force that will advocate for incorporating the communities' needs and solutions in the restoration development planning processes with the government institutions.

Project Component 4: *Develop and implement Pilot Projects in the targeted area to test solutions for the restoration of Azraq oasis - based on the priorities of the stakeholders - – that will pave the way for upscaling when implementing the master plan.*

Activities:

- **Pilot Project implementation:** Based on the local communities' priorities (specific attention will be given to the marginalized groups and women by assessing socio-economic differentiation and the extent that these groups can benefit from water management interventions) and in coherence with the strategic planning process mentioned under Results 3 and 4 as well as the strategic document and pilot project proposed which developed in the inception phase (2007) pilot projects will be undertaken to test viability when to be implemented at a larger scale after approval of the Masterplan. The implementation of Pilot Projects will be a function of the availability of funding and other factors. For instance the UNDP / GEF small grants programme has indicated interest to fund concrete activities that are prioritized in the preplanning processes in the first phase. Other fund for the community initiatives through Mercy Corps projects "USAID funded organization".

- **Further learning and development of local stakeholder capacities:** Through the pilots, the project will develop and test the tools and approaches in a hands-on learning process with the project team and key stakeholders, while using the first round of pilots to build capacity, ownership and commitment, and maintain public support and confidence from the beginning of the project, in addition to that, bring all involved to a shared vision and a common understanding of the project's concepts. Pilot projects will involve technical, methodological and socioeconomic dimensions. Pilots will be designed to provide the stakeholders with successful models that can be emulated on wider scales. They are not particularly sought for themselves but as part of building capacity in the quest of the best ways for the restoration of Azraq oasis and improving the livelihoods living standards."
- Review, strengthen, operate and sustain the Azraq community by capacity building and institutionalizing the forum "Results from Azraq Dialogue initiative 2007 which was funded by Inwent and facilitated by IUCN- ROWA" as a formal entity within Jordan's legal and institutional context, to be responsible for developing effective and trusting management/coordination systems that are functional to sustain the effective water management at local and Oasis level in coordination and cooperation with other stakeholders.
- A continuous stakeholder analysis will be conducted during the implementation stages. **The purpose of stakeholder analysis is to identify all stakeholders** that could provide all sorts of support to the coalition in terms of providing technical advice, data and information, or financial support.

Project Component 5: Share and communicate information and knowledge acquired in this project at the national and regional level by documenting the process (know how), lessons learned, challenges and difficulties and how these have been resolved...etc, to encourage replication of these approaches and models elsewhere.

Activities:

- Build capacity in process documentation
- Develop communication material to enhance awareness of critical issues of water availability and efficient use at the local level.
- Build bridges with other organizations and donors to share knowledge and information and build capacities for the sustainable management of water resources.
- Prepare case study material for the REWARD Regional Dialogue Forum Meetings on Sustainable Ground Water Management in the Region.
- Participation in REWARD and other regional and national conferences and workshops.

4.3 Stakeholders / involved Institutions Key stakeholders

Local level: End users resident in local communities around the Azraq Oasis; water service providers; municipalities, RSCN and community based organizations (voluntary societies, water users associations and cooperatives).

Governorate Level: Governmental institutions at the governorate level (Ministries of water and irrigation, health, environment, industry, agriculture, Interior, social development, Jordan cooperative corporation) in addition to private sector and other ongoing developmental projects.

National level: Decision-makers in water, agriculture and environment related governmental bodies, parliament, donors, NGOs (IUCN members mainly AWO and BDRC) and media.

5. Project Implementation

5.1 Implementation Modalities

This project will be coordinated by a facilitation/planning team at the IUCN ROWA Office in close collaboration with a Coordination Team of the different involved ministries and with support from scientific advice mobilized in the IUCN – WANI "Water and Nature Initiative" and ROWA "West Asia Regional Office and other REWARD Networks on Oasis Management.

The project will operate under the policy and technical guidance of a Steering Committee composed of representatives of MoE, AWO, BDRC, IUCN-WANI, IUCN-ROWA (REWARD) and other key stakeholders (including representatives of relevant Departments in the Governorate of Zarqa and Azraq District). The purpose of this steering committee is to ensure that outcomes of this project are known to and dovetail with the initiatives for other strategic change agents involved in the water sector in Jordan. Further, the makeup of the steering committee will provide the project with technical assistance and advice and influence on the workings that exist or are being developed.

Furthermore, MoEnv in its current mandate could play a major role in sustaining the project and replicating the participatory planning approach at the national level in other oasis and ecosystems. MOEnv is a member of IUCN in Jordan and considered as a strategic partner for IUCN in the region. This will contribute towards the environmental and economic development process in Jordan.

The project designed to initiate collaboration with IUCN- ROWA members in Jordan. Arab Women Organization "AWO" is one of IUCN members in Jordan and IUCN has identified Arab Women Organization as a partner in multi initiatives in the sector of Gender related project, and community participatory planning and management. AWO will be responsible in implementing joint activities and have used its available resources and expertise to better implement IUCN's own initiatives, taking a full advantage of their well established contacts at the field level, seek technical input from their staff and use its facilities whenever needed both to advocate target groups rights and responsibilities. REWARD Team will support AWO in Process documentation and information sharing at different levels (intermediate, national and regional) for Influencing policies toward Local communities rights toward their water resources mainly vulnerability group

Whereas Badia Development and Research Center "BDRC" one of the IUCN- ROWA member in Jordan and a unique center of research, integrated management, community development and environmental conservation of the Jordanian semi- arid area of badia and has an international advisory committee and a local administration council that involves several government officials from different government agencies and institutions including universities and ministries, as well as a scientific affairs committee that involves scientists from different universities and agencies in Jordan . BDRC will be responsible in providing the capability to develop credible information on which to base informed decisions concerning management of Azraq oasis activities from the different water resources which should be practical and

user friendly, easy to use, minimize the data requirements as much as possible, environmental, economical, social issues should be considered, ensure involvement of Stakeholder within the process of taking decisions and replicable for other watersheds in the mountainous areas both in the country and the region. The tool will be well designed in coordination with National key stakeholders, tested and validated before being used as a formal tool for watershed management planning in Azraq Oasis/ Watershed as well as other watersheds in Jordan or other Arab countries.

5.2 Project reporting, communication and financial management with donors

Jordan REWARD staff will be responsible for preparation of semi annually work plans and bench mark tables for monitoring purposes, to be attached to the progress report on the former 6-month period. They need to be delivered to the REWARD Coordinator 6 weeks before the end of the reporting period. The work plan and related budget need to be approved by the IUCN REWARD Coordinator and the IUCN RO Financial Department (for financial management).

The progress reports and bench mark tables (to be developed at the start of the project) will assist in assessing the performance of the project in contributing to intended outcomes through outputs and partnership work. The project shall be subject to a final evaluation at the end of the project.

The Project is designed strongly on a process approach and is meant to be dynamic and flexible enough to accommodate changes in the intended work plan, so as to deal with results as they emerge, constraints encountered and new opportunities. However, the Jordan REWARD staff should consult with the Steering Committee for any changes in project activities or budget. Such changes need to be approved by the IUCN REWARD Coordinator.

A detailed activity budget and timeline is provided as annex 1, while table 1 in funding section below provides a budget overview per result. A Detailed Activity Plan and budget will be prepared by the Project staff, after the startup of the project for a first 6-months project period

