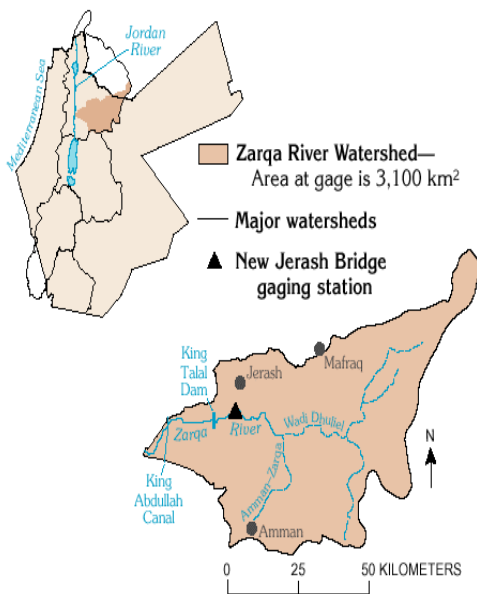


1.1 Zarqa/Amman Box Culvert for Waste water (PFS No.3)

PROJECT INFORMATION		Last Update: 13.10.2009	
Country		PFS No.	JO.03
Project Name	Zarqa/Amman Box Culvert for Waste water		
Region / Governorate	Zarqa Governorate		
City / Town	Wadi Zarqa Area		
Sector	Wastewater		
		Key Objectives: <ul style="list-style-type: none">• Contain flooding and reduce vandalism of the network.• Contain flooding and the natural flow of water• Rehabilitate and improve the quality of water flowing to King Talal Dam.• Transport water during emergencies from Ain Ghazal to pumping station west of Zarqa Governorate.• Contribute positively to water supply in three areas namely: 1) Amman; 2) Rossaifeh; and 3) part of Al-Zarqa• Protect government property.	
Project Components		40km box culvert for wastewater conveyance	
Project Value		Euro 50 Million	

IFs	Not presented to any IFIs
National Strategy and NAP relevance	<p>The deteriorating state of the Zarqa River Basin has become a priority at the highest levels in the Government. As a result, the Ministry of Environment has placed the rehabilitation and integrated environmental management of the Zarqa River Basin at the top of its priorities in its workplan since 2006.</p> <p>Jordan does not have a NAP, however Jordan has developed the National Environmental Action Plan</p>
Relevance to H2020	Even though Jordan is not on the Mediterranean hot spots list however this project serves a considerable amount of people with direct impact on irrigation and drinking water.
Key Parties	<ul style="list-style-type: none"> • Ministry of Water and Irrigation. • Water Authority of Jordan. • Ministry of Planning and International Cooperation.

A. GENERAL INFORMATION		
A.1	Existing work / Current status	Flooded Sewage water currently flows freely down the wadi all the way to King Talal dam creating odder and affecting the irrigation water quality, polluting water resources available in the wells along the wadi and river basin. The flowing sewage water has direct impact on the Wadi Zarqa river basin and the water table and aquifers. In addition to that the current pipeline is on regular basis subject to acts of vandalism by local communities for irrigation and other purposes such as stalling manhole covers.
A.2	Description of area	The area is mainly residential with irrigated cultivated land and farms with some f Industries in the vicinity and along the Zarqa river basin.
A.3	Number of inhabitants	The project will serve a total population of 2M; not only the Wadi Zarqa region.
A.4	Socio-economic status / activities	Agricultural and farming activities with active industrial operations. This area is very important in Jordan as destination for tourism, however the current deterioration of the environment is keeping away any investments to the area.
A.5	Drinking Water Systems	Drinking water networks have been recently rehabilitated and serving the population. Shortage of supply is very current due to stopping some wells as a result of contamination.
A.6	Wastewater Collection	Wastewater collection is the subject of this project, which exists but it is in a deplorable situation.
A.7	Wastewater Treatment	All wastewater collected in the region is being pumped to the Al-Samara WWTP that is currently undergoing an extension programme through the MCC funds to increase its treatment capacities according to the needs. This station serves Amman, Zarqa and Rossaifeh, which means half of the Jordanian population.
A.8	Institution(s)	Water and wastewater management in Jordan are managed by three public agencies. The Ministry of Water and Irrigation (MWI) is responsible of water resources policy and strategy development, water resources planning, research and development, information systems, procuring financial resources. The two agencies, namely the Water Authority of Jordan (WAJ) and the Jordan Valley Authority (JVA) are executing bodies; they are under the umbrella of MWI and the Minister of MWI heads their boards of Directors. WAJ is responsible for providing water and sewage services throughout Jordan and for water resources management while JVA responsibilities cover the development of Jordan Rift valley, including water resources, primarily for agriculture in the Jordan valley and southern Ghors.
A.9	Financial Situation	<p>For this project operation and maintenance of the WWTP after its completion is foreseen neither in the cost estimate nor in the financing required. Jordan has introduced a good tariff structure for water uses (irrigation and domestic) but the tariff seems still to be insufficient to pay back capital investment.</p> <p>Wastewater is charged within the drinking water invoice as a percentage. All loans are so far being covered by central budgets since no sufficient funds are available to cover the capital investment.</p>

B PROBLEM ANALYSIS	
B.1	<p>The area suffers from regular discharge of domestic and industrial wastewaters from urban areas. These wastewaters are principally treated or untreated sewage. In addition, solid waste disposal sites are located within the catchment area. Their leachates reach surface and groundwater resources causing local pollution and threatening to contaminate the aquifers.</p> <p>Moreover the area suffers from regular flooding affecting the quality of water flowing to King Talal Dam. In addition the current pipeline is regularly subjected to acts of vandalism by local communities for irrigation purposes.</p>

C	THE PROJECT
C.1	PROJECT OVERVIEW
	<p>Environmental</p> <p>The project is a direct contribution to protecting water quality in King Talal Dam used for irrigation in Wadi Zarqa. It will also contribute to de-pollution of irrigation water and sanitation and protecting the Zarqa River Basin.</p> <p>Social</p> <p>Socially, the project will help reducing or eliminating any water borne disease incidents among permanent residents and potential visitors. It will serve a total population of 2 million people and support water supply to three main areas; 1) Amman, 2) Rossaifeh; and 3) Part of Al-Zarqa.</p> <p>Economic</p> <p>On basic economic benefits the project will positively influence the operation and maintenance cost incurred in response to flooding and regular acts of vandalism. In the long term the project will restore the areas special attractions.</p> <p>Financial</p> <p>The project is estimated to cost around Euro 50 Million. Detailed financial analysis and return on capital are not well identified. A detailed feasibility study needs to be prepared for the project.</p> <p>Institutional</p> <p>The main promoter for this project is the Water Authority of Jordan (WAJ). The Water Authority of Jordan will be the main institution responsible for implementation and monitoring.</p> <p>Technical</p> <p>The project consists of constructing a 40km box culvert for wastewater conveyance. The project might also include a centralized pumping station in Sukhna and a trunk force main from the Sukhna to the Al-Samra WWTP financed by MCC.</p>
C.2	PROJECT BACKGROUND
	<p>Project background:</p> <p>The environment in the Zarqa Basin, the economic heartland of Jordan, is at risk. In a complex and vicious circle many developmental impacts are degrading the environmental and social conditions in the area. For decades, the Zarqa River has been heavily polluted by untreated domestic and industrial wastewaters, in addition to solid wastes. Solid waste leachates reach surface and groundwater resources causing local pollution and threatening to contaminate the aquifers.</p>
C.3	PROJECT RATIONALE
	<p>Project objectives / rationale:</p> <p>The area where the box culvert is planned suffers from regularly sewage flooding affecting the quality of water flowing to King Talal Dam which provides a storage capacity of 86 MCM. In addition the current pipeline is regularly subjected to acts of vandalism by local communities for irrigation purposes. Accordingly the objective of the project is mainly to contain the flooding and act of vandalism on the network . By containing the flooding and the natural flow of water the project will serve to rehabilitate and improve the quality of water flowing to King Talal Dam and to be used during emergencies to transport the water from Ain Ghazal to pumping station west of Zarqa Governorate. The project will contribute positively to water supply in three areas namely: 1) Amman; 2) Rossaifeh; and 3) part of Al-Zarqa.</p>

Challenges...

The main challenges of this project can be summarized as:

- The current degradation of the environmental situation within the basin area has undermined the quality of life for residential communities.
- The pollutants in irrigation water could get into the food chain and adversely affect consumers.
- The food and water security of the poor are compromised by the current environmental degradation in the basin which exacerbates the current socio-economic situation.
- Poor management of water in the basin means that the allocation of water is not in line with the immediate and pressing needs of the economy and society.
- Instead of having an aesthetic value and contributing to the recreational value of the area, the river in its current state is an eyesore as well as a source of odour.

C.4 EXPECTED RESULTS

Environmental

- Eliminating any possible flooding and protecting water quality in King Talal Dam used for irrigation in Wadi Zarqa

Socio-economical

- Providing better service to the local community hence reducing health risks.
- The sanitation service establishment will create job opportunities during the installation period and permanent jobs for operation
- Serving a population of 2 M people
- There may be new opportunities for agricultural marketing and market development resulting from irrigation with safe water, or business opportunities related to recreation amenities and tourism along the river.

C.5 POLICY CONSTITUTIONS

Evidence of commitment at local and national level

The deteriorated environmental conditions in the Zarqa River Basin have become a priority at the highest levels in the Government. As part of the response action, the Ministry of Environment (MoEnv) - in association with the Ministry of Water and Irrigation (MoWI) and the Zarqa Chamber of Industry - has developed a feasibility study for the establishment of a Centralized Industrial Wastewater Treatment Plant (CIWWTP) in Zarqa to provide a comprehensive system for industrial wastewater treatment and to reduce the costs of establishing individual plants in factories.

Furthermore, the Prime Ministry has formulated a committee representing all stakeholders to set up a plan to solve all problems related to Zarqa River.

Since 2006 the Ministry of Environment has placed the rehabilitation and integrated environmental management of the Zarqa River Basin at the top of its priorities. Accordingly, MoEnv is putting high levels of efforts in developing a strategic management package for the Amman-Zarqa basin, using the catchment area, or watershed as the management unit.

Demonstration value or significance in relation to sector development (WW, SW and/or IE)

The project will contribute to reducing pollution and depletion of water resources in the Zarqa River basin and King Talal Reservoir. The project will have a direct impact on protecting a scarce natural resource that is vital to national economic development and the welfare of Jordanians.

Linkage to sectoral policies, strategies and action plans

This project is directly linked to the Integrated plan of rehabilitation the Zarqa river basin developed by the government with the assistance of IUCN. Consequently the Zarqa Basin restoration has been included on the priority list of the Ministry of Environment's Action Plan. A decision at the highest government levels has been taken to consider the Zarqa basin as a national priority and a committee was formed comprising several parties namely, Ministries of Environment, Water and Irrigation and Zarqa Governorate, Zarqa Municipality, Rossaifa Municipality, Hashmiya Municipality, Zarqa Chamber of Industry, Hashemite University, Royal Scientific Society, and IUCN to develop a logical framework for setting a national strategy for rehabilitation of Zarqa River through a systematic integrated scientific and participatory approach.

<p>Programme/ project approach</p>	<p>This project appears to have a well defined scope and relates to an integrated programme contributing to the rehabilitation of the Zarqa River Basin.</p>
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C.6 INSTITUTIONAL		
	Enforcement of environmental legislations	The primary legislation for the protection of water is a by-law issued under the Environment Protection law of 1995. This sets the water quality objectives; determines standards for wastewater treatment plants and waste disposal sites; and addresses water savings opportunities in the industrial, agricultural and construction sector. Several other laws, by-laws, specifications and standards for water quality were developed based on WHO standards which should be used for various agricultural crops and for discharges into various water bodies. However, neither the monitoring nor the enforcement of these standards has been addressed by any by-law or Decree. Moreover all projects developed by WAJ has to undergo a fully fledged EIA.
	Promoter:	Water Authority of Jordan - WAJ
	Assessment of promoter's capacity	The promoter of this project, Water Authority of Jordan, is an executive body under the umbrella of MWI and the Minister of MWI heads their boards of Directors. WAJ is responsible for providing water and sewage services throughout Jordan and for water resources management. WAJ possesses good knowledge of the situation in Jordan and are experienced dealing with international funding. Technically speaking WAJ has qualified engineers but remains understaffed in terms of project development, follow up and monitoring. According to WAJ own assessment expertise in project related activities is very limited because lots of trained staff are leaving to the private sector due to salary gaps. Needed training topics in project related activities can be focused on Feasibility studies, preparation of TORs, verifying documents and evaluating them.
C.7 FINANCIAL		
	Loan amount	Euro 25 Million
	Availability of government funding	The proposed project cost does not cover and operation and maintenance works after completion, however these can be estimated upon finalizing the feasibility study and included in the new cost estimate. The project will contribute enormously to protecting water resources and consequently the government has shown strong commitment to support such projects and engage in financing contracts. This commitment by the government ensures that all necessary resources will be invested in undertaking this project, however a technical assistance should be foreseen to accompany the execution phase in order to compensate for the shortage in human resources at WAJ to ensure proper follow up. Further confirmation is ensured by the fact that this project is one of the projects that WAJ has included in the budget law for 2010, 2011 and 2012 that approved and accorded.
	Financial sustainability	Valuation of the costs and benefits of healthy river ecosystems and assessment of the social impacts river degradation can be very powerful tools for promoting investment in river restoration and motivating sustainable management of river basins. A fully fledged feasibility study of the project is necessary to cover not only the financial aspects but also the socio-economic components and the values that the country attaches to protecting scarce water resources.
	IFI interest	No expression of interest has so far been presented
	Donor interest (availability of grants)	Based on the inters that major international donors attach to the Zarqa River Basin the project might identify potential parallel financing or grants to support its implementation. However this potential will need to be verified at later stages and commitments sought.
C.8 TECHNICAL		
	Status of studies and permits	Technical Design studies were awarded by the government and are expected to be finalized by the end of 2009. Moreover it is confirmed that a full scale EIA with public consultations was done for this project and approved by the Ministry of Environment.
	Additional studies	<ul style="list-style-type: none"> Preparation of a Pre-Feasibility Study to identify project components and make preliminary cost-estimates – <i>in case the results of the awarded</i>

and TA requirements

contract are approved this step might not be needed.

- Preparation of a Feasibility Study with full analysis of technical and financial feasibility
- Preparation of an EIA for the project
- Review of Detailed Designs
- Preparation of Tender Documents for construction

C.9 SOCIO-ECONOMIC IMPACT

Socio-economically, the Amman-Zarqa area is the most densely populated area in Jordan. It includes about 65% of the total population of Jordan and more than 90% of the small-medium scale industries in the country. With the high population growth and high demand for natural resources, especially water; the Basin is subject to increased exploitation of its natural resources.

The economic and social impact of this project is also directly linked to the entire plan of restoration of the Zarqa river. It will allow the local community to enjoy improved, more sustainable livelihoods and to develop new enterprises. For example, river restoration will improve access to safe water and sanitation and reduce environmental health risks associated with contamination of food supplies. There may be new opportunities for agricultural marketing and market development resulting from irrigation with safe water, or business opportunities related to recreation amenities and tourism along the river.

The project will in the longer term contribute to increasing investment opportunities in tourism facilities that will create jobs for the local community. The current deterioration of the quality of irrigated water will reach levels where farmers can no longer sell their produce. Accordingly the project will contribute to saving the farming business in the region from diminishing. Last but not least the project will directly help WAJ to improve service provision and efficiency and reduce burden on unnecessary costs of maintenance resulting from regular repairs of the current infrastructure.

C.10 ENVIRONMENTAL IMPACT

The resulting environmental impacts along the Zarqa River Basin include the following:

- The deterioration of the groundwater quality in Zarqa basin due to infiltration of wastewater to a level that is unsuitable for irrigation.
- The increase in polluted swamps along the Zarqa river course leading to the increase of insects and disease transmitting vectors.
- The high level of nutrients in the water has resulted in the increase of algal blooms and pollution.
- The severe deterioration of the water quality in King Talal Reservoir to a level that threatens the viability of irrigated agriculture in some locations.
- The increase in soil salinity in the Zarqa basin and the deterioration of agricultural productivity.
- Lost potential for investment in the basin and lost assets for poverty alleviation, as well as low tourism potential.

Consequently the project will contribute to the following main results:

- **Contribute to reducing negative impacts on natural resources**

The project will substantially contribute to protection not only of ground water and aquifers from being contaminated but also the irrigation water provided through the King Talal Dam (reservoir). This will reduce potential contamination in the food chain and consequently protect the community from possible adverse effects.

- **EIA**

The proposed project will contribute to solving a substantial part of the negative impacts however the designs and planned infrastructure would undergo an Environmental Impact Assessment in order to verify the various components and review the viability and importance of the project at the environmental and socio-economic level.

C.11 OPPORTUNITIES & RISKS

	Opportunities	<p>Institutional</p> <ul style="list-style-type: none"> Relieves the WAJ from emergency response operations in conducting repairs on the existing pipelines resulting from damage caused by surrounding community <p>Financial</p> <ul style="list-style-type: none"> Reduces unnecessary cost of operation and maintenance on the existing pipeline that is regularly subjected to acts of vandalism In addition, the cost of the works and clean-up of the Basin will be lower today than any point in the future, thus saving money in the future. <p>Technical</p> <ul style="list-style-type: none"> The implementation of the project is a great opportunity to protect government property and infrastructure installations. <p>Relevance to country's policies / strategies</p> <ul style="list-style-type: none"> This project has been listed in the 3-year executive plan as priority project for implementation. The project responds to the Cabinet and Prime Minister's Decision to recover Wadi Zarqa River Basin The Ministry of Environment has placed the rehabilitation and integrated environmental management of the Zarqa River Basin at the top of its priorities in its workplan since 2006. <p>Studies</p> <ul style="list-style-type: none"> Design studies are ongoing and are expected to be finalized by the end of the Year
	Risks	<p>Institutional</p> <p>A major institutional risk that might affect indirectly the project is the ability of the Ministry of Environment to legally enforce environmental legislations on industrial activities in the region to respect effluents discharged in the basin.</p> <p>Financial</p> <p>At the institutional level the main risk that the project might face is the availability of funds to implement the integrated plan for the restoration of the Zarqa River Basin that could accompany the implementation of this project.</p> <p>Studies</p> <p>The technical designs of the project have been already awarded and are expected by the end of 2009. Given the need to undertake an EIA as part of the project preparation towards maturity, the EIA results might require some changes in technical designs to comply with the EIA recommendations.</p>
C.12 PROJECT READINESS		
	Budget: Implementation plan	<p>Implementation plan - Not ready yet</p> <p>Monitoring of implementation plan - Not ready yet</p> <p>Project Readiness - The project is not ready yet as only the technical design tender has been awarded by WAJ to private consultants in Jordan.</p> <p>Summary of gap analysis</p> <p>The following studies are required to prepare the project, including all activities involved in hiring and supervising consultants, such as prequalification, preparation of terms of reference and requests for proposals, tendering, proposal evaluation, contract negotiation, progress supervision and review of reports :</p> <ul style="list-style-type: none"> Preparation of a Pre-Feasibility Study to identify project components and make preliminary cost-estimates Preparation of a Feasibility Study with full analysis of technical and financial feasibility Preparation of an EIA for the project Review of Detailed Designs Preparation of Tender Documents for construction

FOR FURTHER DETAILS SEE GAP ANALYSIS IN ANNEX 1

ANNEX 1 - CONTACT PERSONS

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