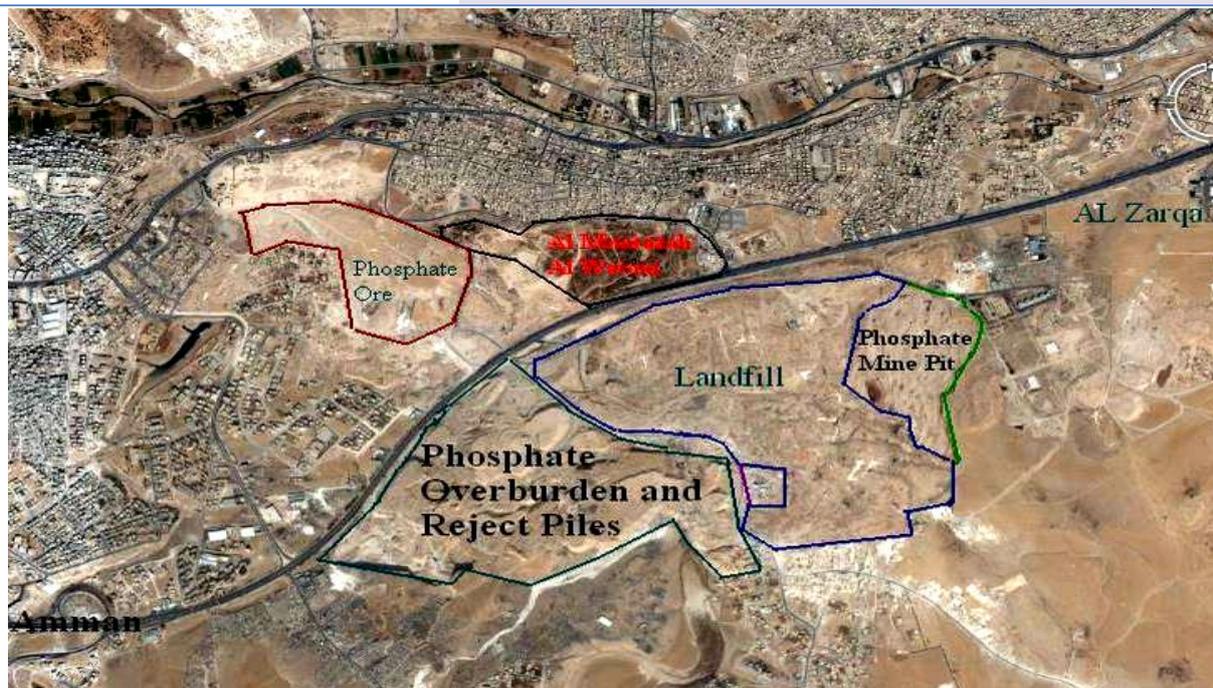


Jordan

1.1 **Russaifah Phosphate Mining and Dump Site** PFS No JO.06)

PROJECT INFORMATION		Last Update: 10.09.2009	
Country	JORDAN	PFS No.	JO.06
Project Name	Rossaifah Phosphate Mining and Dump Site		
Region / Governorate	Amman		
City / Town	Rossaifah		
Sector	Solid Waste		



Key Objectives	<p>The key objectives of the project are:</p> <ul style="list-style-type: none"> • Eliminating risks of ground water contamination • Eliminating health hazards generated from phosphate dust • Rehabilitate the site
Project Components	<ul style="list-style-type: none"> • Management of phosphate ore piles • Proper closure of landfill and rehabilitation • Installation of a gas collection system for energy generation • Installation of monitoring systems
Project Value	
IFs	
National Strategy and NAP relevance	The project was also identified by the MeHSIP study as one of the hot spots being part of a programme that Jordan has also developed to identify and manage environmental hot spots
Relevance to H2020	<ul style="list-style-type: none"> •
Key Parties	<p>Amanat Amman Greater Amman Municipality Ministry of Environment Phosphate company</p>

A. GENERAL INFORMATION		
A.1	Existing work / Current status	After the discovery of new phosphate rich ore in southern Jordan, mining activities in Rossaifah reduced. The site has been left without a comprehensive rehabilitation plan except for some localized efforts. Illegal dumping of rubble and municipal solid waste is currently taking place despite efforts to close the site completely. Illegal dumping of liquid and solid industrial waste is also continuing. With recent funding from UNDP, landfill gas is being collected and is converted to energy at the adjacent biogas plant. Even with the gas collection system in place odour issues still persist.
A.2	Description of area	The Rossaifah mining area is located off the main highway connecting cities of Amman and Al-Zarqa as presented in Figure 1 hereunder. The phosphate mine and other industrial activities, in the area have led to the rapid, uncontrolled urbanization of Rossaifah..
A.3	Number of inhabitants	Rossaifah is now the 4 th largest city in Jordan with an estimated population of more than 300,000
A.4	Socio-economic status / activities	The lack of land zoning in the area has resulted in some dwellings being unsafely constructed over unstable soils and abandoned phosphate mining tunnels. Houses in the area are also separated by either reject piles or by abandoned phosphate mining facilities. The close proximity of the general population to the mining and stockpiles area has led to the widespread appearance of some health problems such as asthma. Phosphate ore moving, loading and unloading activities in the northwest, close to populated areas, can generate large amounts of dust that can potentially contain heavy metals and naturally occurring radioactive material.
A.5	Drinking Water Systems	NOT APPLICABLE
A.6	Wastewater Collection	NOT APPLICABLE
A.7	Wastewater Treatment	NOT APPLICABLE
A.8	Institution(s)	Several institutions are involved on this project site. So far it has been difficult with to identify one promoter for this project since they all feel concerned but no one is ready to take the responsibility of engaging in loan agreements. Regarding solid waste management, and as reflected in the legal framework, there are two national level entities with responsibilities for solid waste management. The Ministry for Municipal Affairs plays a key role in its administration of municipal affairs. One key responsibility of the Ministry relates to the provision of funds through which the municipalities finance waste management capital expenditures. The Ministry of Environment has the responsibility for regulating the activities that may have an impact on the environment. Municipalities are responsible for waste management operations. In the waste management sector Jordan has implemented inter-municipal agreements that provide for individual municipalities to collect wastes, and for inter-municipal management of wastes management facilities.
A.8	Financial Situation	NOT CLEAR

B PROBLEM ANALYSIS	
B.1	The availability of mining pits, the large volumes of overburden and the site location have lead to the development of one of the largest unsanitary solid waste disposal sites in the Kingdom. During its peak operation the landfill was receiving approximately 2,500 tons per day or 2/3rd of the Jordanian solid waste stream. The landfill covers an area of approximately 1 - 2 km ² and is between 20-30 m deep. Like most other landfills in Jordan, Al-Rossaifah landfill is unlined. Leachate generated at the landfill site can migrate through the vados zone and potentially contaminate ground water. Unlike solid waste in western countries, Jordan's solid waste stream mainly consists of biodegradable organic matter (approximate 60-70%). The anaerobic degradation processes of these organics are associated with offensive odours that are caused by the formation of highly aromatic organic acids called volatile fatty acids (VFAs)..

C THE PROJECT

C.1 PROJECT OVERVIEW

Environmental

Most, if not all, of the environmental problems in the area can be directly linked to the phosphate mining activities at the site. The project is mainly concerned in providing a comprehensive solution for protecting groundwater sources in the area, relieving the community from the bad odour generated from the municipal waste dumped there and reducing public health hazards.

Social

The close proximity of the general population to the mining and stockpiles area has led to the widespread appearance of some health problems such as asthma. Phosphate ore moving, loading and unloading activities in the northwest, close to populated areas, can generate large amounts of dust that can potentially contain heavy metals and naturally occurring radioactive material.

Financial

Based on a rough estimate of the tasks involved the project can cost around 20 M Euros

Institutional

Institutionally the project has multiple stakeholders with no identification of a sole interlocutor except for the Ministry of Environment in terms of standards and procedures with regards to environment natural resources protection

Technical

Technically speaking the project, although it entails four main components mentioned above, every component will require several accompanying activities that will introduce an integrated approach to solving environmental problems at Rossaifah..

C.2 PROJECT BACKGROUND

Most, if not all, of the environmental problems in the area can be linked to the phosphate mining activities at the site. The Rossaifah mining area is located off the main highway connecting cities of Amman and Al-Zarqa. An overview shot of the mining area is presented in Figure above. Historically, the area has been a phosphate mining area since the early 1900s. Aggressive mining started during 1963 and continued until the mid 1980s covering approximately 13.5 km². The mining activities resulted in large changes in the topography of the area that altered the natural watershed flow causing further environmental damage

C.3 PROJECT RATIONALE

The main rationale behind the project is the severity of the environmental and socio-economic problems it is creating and will aggravate if no action is taken. These problems can be summarized as follows:

- Lack of enforcement action. Environmental regulations are written and not enforced.
- High level of contaminated and potentially carcinogenic airborne particulate matter and fugitive dust generated from the phosphate ore and reject piles present at the site. This is a serious problem in the area, as it would lead to an overall increase in cases of cancer and other respiratory diseases.
- Side slope stability of phosphate ore piles. This mainly is a hazard to nearby traffic and residents. A heavy rain storm or a small ditch near these piles would lead to a slide and may cause some death. The close proximity of roadways to the large unsupported piles raises the need to address this issue rather quickly.
- Landfill gas odour problems and some associated exposure to aromatic hydrocarbons.
- Illegal dumping of industrial liquid and solid wastes. This requires enforcement on the part of MOE and Greater Amman Municipality (GAM).
- Uncontrolled site access which can easily be solved by the installation of a robust security fence around the site.
- The inadequate groundwater monitoring leaves a lack of knowledge potential groundwater contamination .

C.4 EXPECTED RESULTS	
Environmental	The main outputs of the project are environmental. Accordingly the project will lead to preventing further pressures on the environment namely air, water, and soil. As described in the problem analysis the project has impacts on all three media.
Socio-economical	As the different media mentioned are directly related to the community at large the project inevitably will contribute substantially to protecting public health and avoid unnecessary incidents affecting the wellbeing of the surrounding community.
C.5 POLICY CONSTITUTIONS	
Evidence of commitment at local and national level	The project has been reflected as a top priority by several government authorities and funding agencies. In addition to that Jordan Identified Three major hotspots mentioned in the MeHSIP study published in 2007: <ol style="list-style-type: none"> 1. Rehabilitation and Integrated Ecological Management of Zarqa River Basin. 2. Phosphate Mining Site in Rossaifah. 3. Al -Akaider landfill site in the North.
Demonstration value or significance in relation to sector development (WW, SW and/or IE)	In relation to specific sector development the project will demonstrate a major improvement in the solid waste management sector for Jordan as it will resolve one of the biggest problems on the sector.
Linkage to sectoral policies, strategies and action plans	The project touches on two major sectors: solid waste sector and the water sector through its impact on ground and water resources at close proximity of the project..
Programme/ project approach	Although the project touches on several sectors namely: wastewater, municipal solid waste and industrial emissions it remains confined to one specific geographic area . Accordingly the approach is rather a project approach than that of a programme approach.
C.6 INSTITUTIONAL	
Enforcement of environmental legislations	There are no standards or specifications for solid waste management in Jordan. No new landfills have been established for the last 15 years apart from the one that serves the city of Amman. In the absence of environmental standards for landfill design, only the EIA process is available to evaluate the new landfills. At present, there are 24 authorized disposal sites in Jordan but most of these sites are not lined and do not have a leachate collection system to reduce contamination. National solid waste management policy or strategies for solid waste management does not exist. However, NEAP has identified solid waste management as a national priority and has defined a wide range of actions to improve the SWM situation. The Environment Protection Law No. (1) of 2003 addresses the issue of solid waste and SWM is addressed by a recent regulation. However there is still no clear law that addresses SWM and sets standards for related activities. The absence of national solid waste management strategy and a solid waste law are considered to be the major obstacles to the development of effective solid waste management in Jordan.
Promoter:	NOT YET Identified
Assessment of promoter's capacity	NOT POSSIBLE AT THIS STAGE
C.7 FINANCIAL	
Loan amount	To be assessed once a national consensus is reached
Availability of government funding	To be assessed once a national consensus is reached
Financial sustainability	To be assessed once a national consensus is reached

	IFI interest	To be addressed once a national consensus is reached. However from meetings with various IFIs in the country a close follow up on this site is being maintained.
	Donor interest (availability of grants)	USAID has already funded a comprehensive assessment of the site.
C.8	TECHNICAL	
	Status of studies and permits	An environmental assessment has been made to identify the different impacts. An elaborated version was then produced to identify different interventions with preliminary cost estimate.
	Additional studies and TA requirements	The following studies/revisions are required to prepare the project,; <ul style="list-style-type: none"> • Preparation of a Feasibility Study with full analysis of technical and financial feasibility • Preparation of an EIA for the project • Preparation of Detailed Designs • Preparation of Tender Documents for construction
C.9	SOCIO-ECONOMIC IMPACT	
	Removing some of the reject and overburden piles and planting cover vegetation over some of the larger piles would reduce the serious problem in the area related to an overall increase in cases of cancer and other respiratory diseases.	
C.10	ENVIRONMENTAL IMPACT	
	<ul style="list-style-type: none"> ▪ High level of contaminated and potentially carcinogenic airborne particulate matter and fugitive dust generated from the phosphate ore and reject piles present at the site. ▪ Take care of the side slope stability of phosphate ore piles that creates substantive hazards to nearby traffic and residents. A heavy rain storm or a small ditch near these piles would lead to a slide and may cause some death ▪ By increasing the efficiency of the gas collection on site, landfill gas odour problems will be reduced or possibly eliminated <p>Installation of proper groundwater monitoring at the site will provide adequate knowledge of potential groundwater contamination and ensure the safety of the water resources in the area.</p>	
C.11	OPPORTUNITIES & RISKS	
	Opportunities	<p>Institutional At this level there is an agreement among all concerned institutions that the project is a necessity and needs to be addressed. The Ministry of Environment is aware of the severity of the problems caused by the existing situation and shown commitment in pursuing the matter further with other parties concerned.</p> <p>Financial Jordan will be entitled to benefit from the global initiatives on Clean Development Mechanisms (CDM) positively affecting the sustainability of the site and its operations.</p> <p>Relevance to country's policies / strategies Based on the MeHSIP study the Rossaifeh site is one of the three hot spots that Jordan has identified that requires immediate attention and management</p> <p>Studies With the help of USAID the site benefited from an environmental assessment study. The study was further enhanced by identifying needed interventions for site improvement with a cost estimate for every intervention.</p>
	Risks	Institutional

		<p>The site so far has no clear promoter ready to take the responsibility to engage in discussions for financing or even to invest solely in rehabilitation works without an equal commitment from others concerned.</p> <p>Financial</p> <p>This is not clear yet but it needs serious assessment in terms of the returns generated from CDM.</p> <p>This section needs to be further assessed upon reaching a consensus among the parties involved.</p>
<p>C.12 PROJECT READINESS</p>		
	<p>Budget: Implementation plan</p>	<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 no studies have been conducted.</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. However what is more important under this project is the negotiations that should be undertaken to reach a consensus among national counterparts and stakeholders on who will be the main promoter of the project and ready to engage in any financing commitments. The needed steps are as follows:</p> <ol style="list-style-type: none"> 1. Identify the promoter 2. Conduct a detailed assessment of the proposed solutions 3. Develop a feasibility study 4. Conduct an EIA for the various interventions 5. Conduct a socio-economic analysis 6. Conduct institutional assessment for project management and implementation with the option of including a TA component 7. Preparation of Tender Documents for construction

ANNEX 1 - GAP ANALYSIS

ANNEX 2 - CONTACT PERSONS

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