United States Agency For International Development

Initial Environmental Examination

of the

Zana Khan Dam Rehabilitation Project

A part of the Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program
Contract 306-C-00-02-00500-00

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ACRONYMS/GLOSSARY

LIST OF ACRONYMS/GLOSSARY

A

AASHTO	American Association of State Highway and Transportation Officials
ACCA	Afghan Assistance Coordination Authority
ACIA	Afghanistan Civil Infrastructure Assessment
ADB	Asian Development Bank
AIA	Afghanistan Interim Administration

B

BOD	Biological Oxygen Demand

C

CAWSS	Central Authority for Water Supply and Sewage
CFR	Code of Federal Regulations
CO	Carbon Monoxide
COD	Chemical Oxygen Demand
COPA	Conditions of Particular Application
CSC	Construction Supervision Consultant

D

DACAAR	Da Afghanistan Breshma Moassesa (Afghanistan Electrical Utility)
dB	Decibel
DO	Dissolved Oxygen

E

EA	Environmental Assessment
EIA	Environmental Impacts Assessment
EIRR	Economic Internal Rate of Return
EU	European Union

F

FIDIC	*Federation International Des Ingenieurs Conseils* (International Federation of Consulting Engineers)

G

GC	General Contractor
GCOC	General Conditions of Contract
Gozar	Neighborhood
GoA	Government of Afghanistan
GPD	Gross Domestic Product
GPS	Global Positioning System

H

Ha	Hectare

I

ICB	International Competitive Bidding
IDA	International Development Association
IEE	Initial Environmental Examination
IFC	International Finance Corporation
IMF	International Monetary Fund
ISAF	International Security Assistance Forces
ICUN	International Union for the Conservation of Nature

J

K

KM	Kilometer

L

LCB	Local Competitive Bidding

M

MHBTP	Ministry of Housing, Building and Town Planning
MIWRE	Ministry of Irrigation Water Resources and Environment
MMI	Ministry of Mines and Industry
MOC	Ministry of Communications
MOI	Ministry of Interior
MOIC	Ministry of Information and Culture
MOP	Ministry of Power
MPW	Ministry of Public Works
MSL	Mean Sea Level

N

NGO	Non-Governmental Organization
NMT	Non-Motorized Traffic
NO	Nitrogen Oxide

P

Pb	Lead
PCF	Post Conflict Fund

R

REFS	Rehabilitation of Economic Facilities and Services

S

SE	Supervising Engineer
Shura	District (typically 15-20 *gozars*)
SPM	Suspended Particulate Matter
SS	Suspended Solids
STD	Sexually Transmitted Disease

T

TOR	Terms of Reference
TSP	Total Suspended Particulate

U

UN	United Nations
UNDP	United Nations Development Fund
UNEP	United Nations Environment Program
UNMAC	United Nations Mine Action Center
USAID	United States Agency for International Development
USAID/GC	USAID General Contractor
UXO	Unexploded Ordnance

V

VOC	Vehicle Operating Cost

W **X**

Y **Z**

INITIAL ENVIRONMENTAL EXAMINATION
Of The Proposed:
ZANA KHAN DAM REHABILITATION PROJECT
Proposed As Part Of The
REHABILITATION OF ECONOMIC FACILITIES AND SERVICES (REFS) PROGRAM
With Funding Provided By
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
Contract 306-C-00-02-00500-00
September 2003

Summary of Findings

Proposed Action. The United States Agency for International Development (USAID) proposes to fund the Zana Khan Dam Rehabilitation Project as a part of its Afghanistan Rehabilitation of Economic Facilities (REFS) Program. The dam is located in Zana Khan District, approximately 26 kilometers northeast of Ghazni City. The dam is fed by run-off from the surrounding mountains and supplies water for a relatively small scale irrigation system.

Examination Methodology. Pursuant to Environmental Procedures established by Title 22 of the U.S. Code of Federal Regulations, Part 216 (22 CFR 216), USAID made a *Positive Determination* for REFS Component 1 (the Component of with the proposed Project is a part), i.e., a determination that environmental documentation will be required on a project-by-project basis. The Determination noted that "*Not all infrastructure activities financed under Component 1 will require (a full) Environmental Assessment. The Contractor shall conduct environmental screening to identify and document those infrastructure activities that are smaller in scale and lower in risk. For these activities, the Contractor shall prepare environmental guidelines that will be used to minimize and mitigate potential environmental impacts. Included in the guidelines will be an environmental mitigation checklist to be completed as a part of final design for each project…. The guidelines will also describe procedures for monitoring construction activities to assure that identified mitigation measures have been implemented as planned" (*USAID Environmental Threshold Decision, REFS Program, 24 October 2002). The Initial Environmental Examination (IEE) has been structured to provide the required guidelines and to provide the procedural documentation to support a project-level Threshold Decision (i.e., a determination whether a full project-level EA is or is not warranted) based on environmental screening criteria pursuant to the requirements of 22 CFR 216 and other environmental considerations.

Findings and Recommendations. The IEE recommends a determination that an EA is not warranted, provided that the recommended environmental guidelines (incorporating a checklist for use as a part of final Project design and a recommended monitoring program) are adopted. To facilitate the adoption the IEE provides:

- Recommended Environmental Contract Provisions (**Appendix A**); and
- Guidelines for the compensation of project-affected persons (PAPs) for use in the event that unexpected impacts are encountered (**Appendix B**).

The IEE also recommends actions beyond the scope of the Project, but within the scope of the REFS Program, specifically:

- Identification of specific institutional strengthening activities to ensure that the rehabilitated dam and irrigation system is adequately maintained (as part of REFS Component 2) ; and
- Development of a coordinated water resources program as the context for additional water-related projects in the REFS Program.

1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 PURPOSE OF THE IEE

This document presents an Initial Environmental Examination (IEE) of the Zana Khan Dam Project (the Project) proposed for funding by the United States Agency for International Development (USAID) as part of its Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program. The purpose of the IEE is to ensure that environmental issues have been foreseen in its development and implementation plans. The administrative and strategic context provided by the REFS Program is explained in **Item 1.2** below. Details of the proposed Project are provided by **Section 2.0**, Project Description.

To ensure that environmental issues associated with projects such as the Zana Khan Dam are adequately foreseen, all projects identified for funding by USAID are subject to the Environmental Procedures established by Title 22 of the U.S. Code of Federal Regulations, Part 216 (22 CFR 216). Unless they are categorically excluded as a meeting established criteria (including a criterion which states that the project "*does not have an effect on the natural or physical environment*"), all projects require the preparation of an IEE and/or an Environmental Assessment (EA).[1] The intent of the IEE is to allow a "Threshold Decision" defined by the regulations as a "*formal Agency decision which determines….whether a proposed Agency action is a major action significantly affecting the environment*" and, therefore, does require preparation of an EA (referred to as a "Positive Determination"); or, conversely, finds the data and safeguard commitments provided by the IEE are sufficient to conclude the contrary i.e., a finding that there is sufficient analysis to conclude that the Project will not have an adverse effect on the environment (referred to as a "Negative Determination"). A Negative Determination allows the project to proceed without further environmental investigation except as may be noted in the conditions of the determination. The IEE step is not always necessary. Certain categories of projects are generally deemed to have a significant effect on the environment may proceed directly to the preparation of an EA. For all other projects, however, and for projects generally deemed to have a significant effect but for which the originator of the project "*believes that the project will not have a significant effect on the environment*", preparation of an IEE is an essential step in the project approval process.

The Zana Khan Dam Project, like any rehabilitation project, will have some effect on the physical and natural environment and does not qualify for a categorical exclusion. The IEE as documented herein, however, indicates that:

- These effects will be overwhelmingly beneficial;
- The Project will not be undertaken in a highly sensitive environment that would raise concerns to a level requiring the preparation of an EA (as documented by **Section 3.0**, Environmental Screening);
- The potential less-than-significant adverse impacts generally associated with rehabilitation projects can be avoided through the provisions stipulated herein (**Section 4.0**, Environmental Guidelines); and

1 Projects having as potential for impact on the global environment or outside the jurisdiction of any country may require the preparation of an Environmental Impact Statement as defined by the National Environmental Policy Act. None of the actions discussed herein fall within this definition.

- A Negative Determination is recommended (**Section 5.0**).

Details are as follows.

1.2 ADMINISTRATIVE & STRATEGIC CONTEXT

The REFS Program of which the Zana Khan Dam is a part was developed on the basis of an Afghanistan Civil Infrastructure Assessment (ACIA) for which field investigations were undertaken in the period from 13 June to 18 July 2002 and documented by a Final Report to USAID/Afghanistan on 20 August 2002. The purpose of the ACIA was to identify and prioritize Afghanistan's civil infrastructure and its reconstruction, repair and rehabilitation needs and the need for agricultural market centers. The ACIA recommended a prioritized program for:

- Labor-intensive inter-provincial road rehabilitation projects;
- Development of rural market centers ;
- Major roads and bridge projects;
- A National Secondary Roads Program; and
- A National Primary Roads Program.

The REFS Program was developed on the basis of the ACIA specifically "*to promote economic recovery and political stability in Afghanistan by repairing selected infrastructure needed to lower transportation cost, improve the provision of water and sanitation services, increase access to education, health and local government facilities, restore electrical transmission and distribution systems, and repair/reconstruct irrigation systems, dams/diversions and canals critical to the reactivation of the agricultural sector, the dominant means of livelihood in the country.*"[2]

To achieve these goals, the REFS Program consists of three components:

- Rehabilitation and Construction Projects (Component 1);
- Institutional strengthening of selected public services (Component 2); and
- Purchase, importation and distribution of construction materials and supplies not otherwise available in Afghanistan (Component 3).

In accordance with its internal procedures and in accordance with the regulations as outlined above, USAID made a Positive Determination for REFS Component 1, i.e., a determination that environmental documentation will be required on a project-by-project basis for projects involving civil works. Component 2 was determined to warrant a Categorical Exclusion, i.e., a determination that the component meets the pre-established criteria rendering an EA unnecessary. A Negative Determination was made in regard to Component 3, i.e., a determination that, after due consideration, an EA is unnecessary for this component.

In regard to the Component 1 activities the Determination specifically noted that "*Not all infrastructure activities financed under Component 1 will require an Environmental Assessment. The Contractor shall conduct environmental screening to identify and document those infrastructure activities that are smaller in scale and lower in risk. For these activities, the Contractor shall prepare environmental guidelines that will be used to minimize and mitigate potential environmental impacts. Included in the guidelines will be an environmental mitigation checklist to be completed as a part of final design for each project. Where the analysis indicates that negative environmental effects could occur, the project will be designed to avoid or mitigate those effects. The guidelines will also describe procedures*

2 REFS Contract, page C-2.

for monitoring construction activities to assure that identified mitigation measures have been implemented as planned".[3]

The IEE provides the required screening in regard to the Zana Khan Dam Project in **Section 3.0**. The recommended environmental guidelines are presented in **Section 4.0**. Based on these findings and application of the guidelines, it has been concluded that the IEE leads to a Negative Determination i.e., that the preparation of an EA is not required provided that the recommendations presented herein are incorporated in the Project. The conclusion and its rationale are presented in **Section 5.0**.

1.3 ORGANIZATION OF THE IEE

The IEE is organized as follows:

- **Section 1.0: Introduction.** The section in hand provides introductory information.

- **Section 2.0: Project Description**. Section 2.0 presents details of the proposed Project and a description of the existing environmental policies and procedures in Afghanistan.

- **Section 3.0: Environmental Screening**. Section 3.0 presents the relevant environmental criteria as identified based on USAID regulations, and additional environmental considerations and issues associated with rehabilitation projects and the specifics of the Zana Khan Dam Project. The discussions of the criteria present statements of:

  - Existing Conditions;
  - Potential Impacts and Anticipated Design Avoidance/Mitigation Actions; and
  - Additional Recommendations.

- **Section 4.0: Environmental Guidelines**. The Environmental Guidelines presented in Section 4.0 present:

  - A Recommended Checklist - Completion of the Checklist is recommended as a part of final Project design; and

  - Recommended Monitoring.

- **Section 5.0: Recommended Threshold Decision**. Section 5.0 recommends a determination that the preparation of an EA is not warranted based on the data and rationale presented therein.

3 USAID Environmental Threshold Decision, REFS Program, dated 4 September 2002, signed 24 October 2002.

2.0 PROJECT DESCRIPTION

2.0 PROJECT DESCRIPTION

2.1 OVERVIEW

The Zana Khan Dam is located in Zana Khan District 26 kilometers northeast of Ghazni City at the GPS coordinates of latitude N 33 17' 33.35" longitude E 68 38' 03.19". The dam is fed by run-off from the surrounding mountains and is situated at an elevation of 2,480 meters above mean sea level (msl). Waters from the reservoir feed the irrigation system in the town of Rauwza, approximately 20 kilometers to the southwest. **Exhibit 2-1** illustrates the location of the Project within the context of the REFS Irrigation and Bridge Project, **Exhibit 2-2** indicates the Projects location within Ghazni Province.

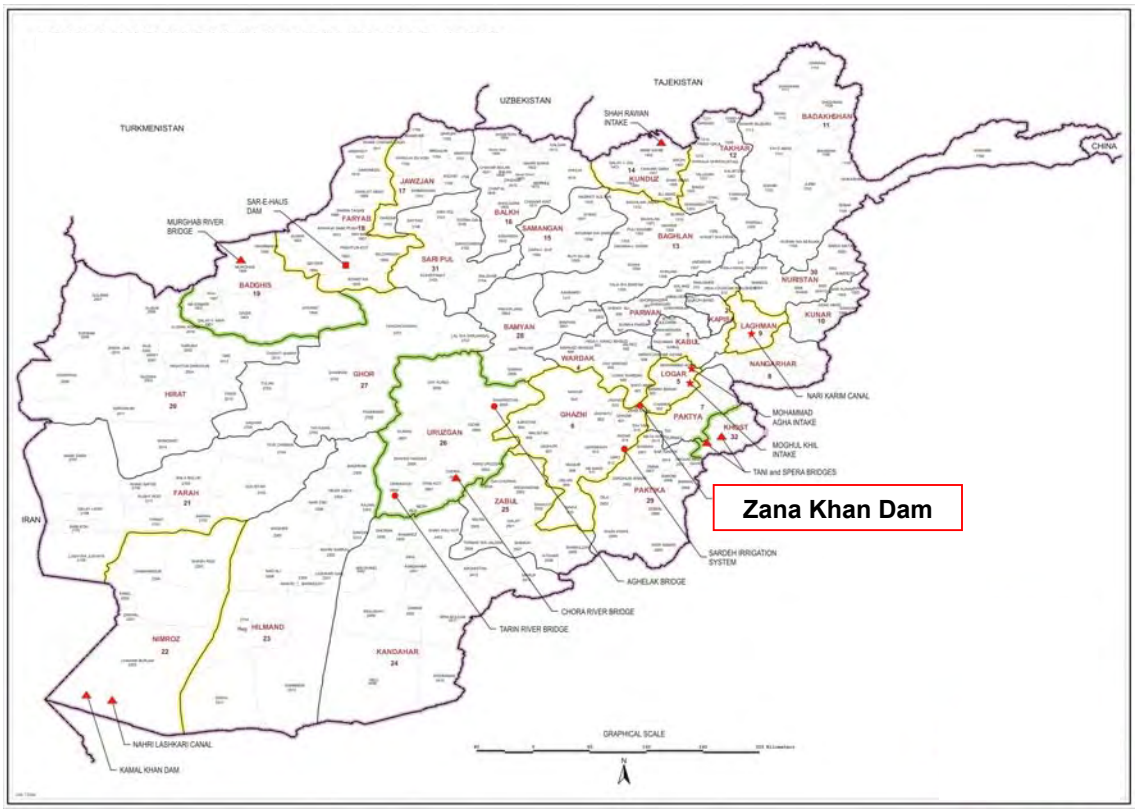

EXHIBIT 2-1. REFS IRRIGATION AND BRIDGE PROJECTS

Zana Khan Dam was originally constructed during the era of Sultan Mahmood Ghaznawy in 1013. The original structure was eventually destroyed, however, and it reconstructed to its current status between 1911 and 1916 with technical personnel and assistance from Germany. The reconstruction of the dam included installation of two 100-centimeter intake pipes at the bottom of the dam with two sluice valves and one side channel spillway 17 meters wide and 1.7 meters deep from the crest of the dam on the right bank. Between 1939 and 1944, the reservoir of the dam was expanded to increase capacity, which during peak rainy season is approximately one million cubic meters.

Details of the proposed actions are provided below. Details of the existing conditions in the potentially affected area are provided item-by-item under the headings of the relevant environmental criteria in **Section 3.0**.

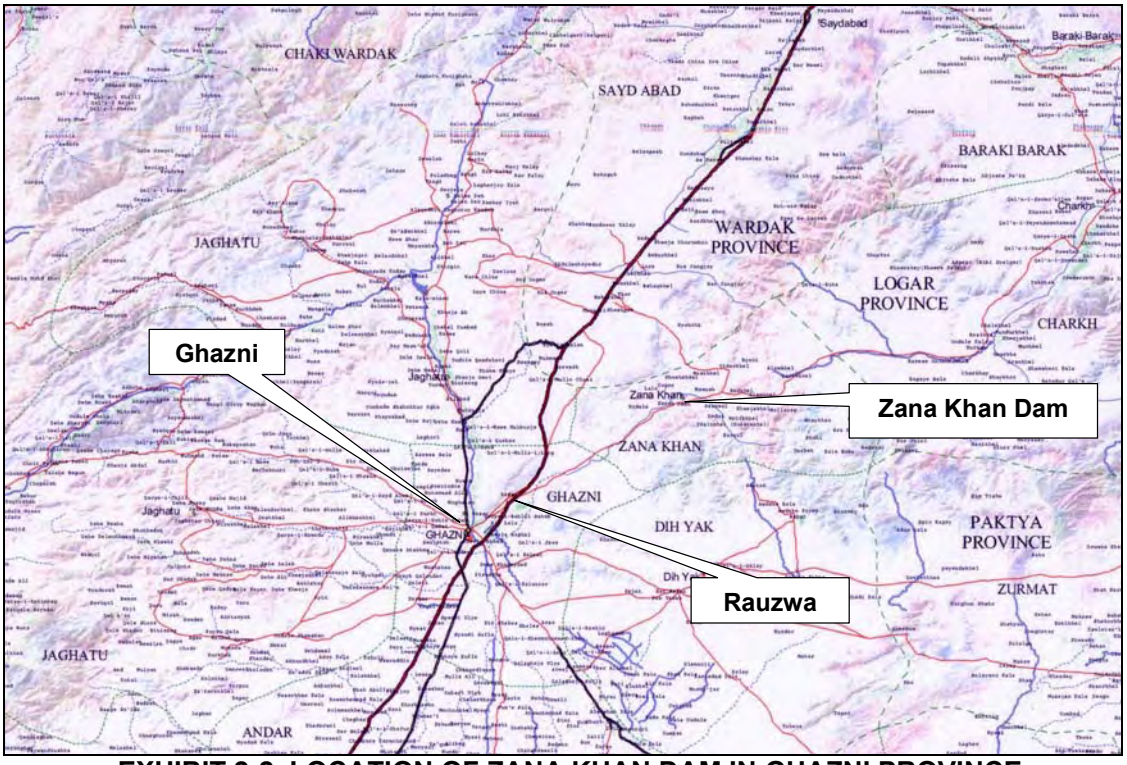

EXHIBIT 2-2. LOCATION OF ZANA KHAN DAM IN GHAZNI PROVINCE

2.2 DETAILS OF THE PROPOSED ACTION

The work to be performed includes only the necessary construction to rehabilitate Zana Khan Dam so that it becomes fully functional again. The repair works are critical to the safe operation of the dam. If improvements are not made, the dam could become unstable due to the leakage and deterioration of the masonry on the face of the dam. A collapse of the dam could cause severe damage to the villages and agricultural lands downstream of the dam and possibly to the City of Ghazni.

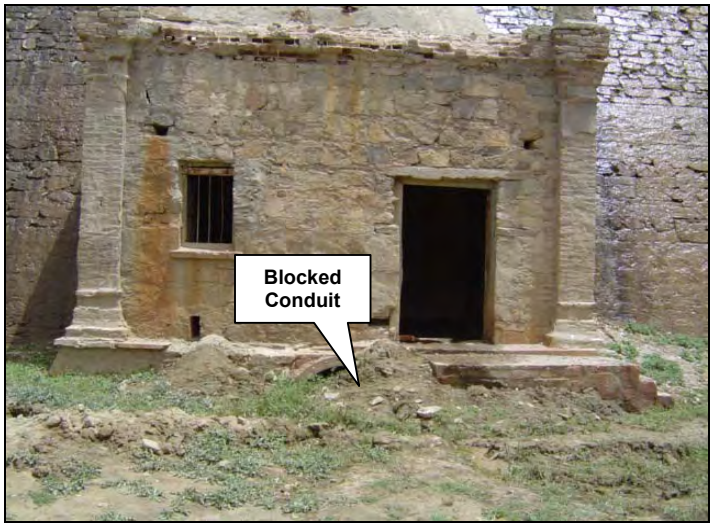

EXHIBIT 2-3. SILT BLOCKED CONDUITS

The works to be undertaken on the Project include the following:

- Silt removal shall be performed in the reservoir as well as in all the conduits. **Exhibit 2-3** illustrates the current condition of the conduits.

- Protection downstream of the discharge pipes shall be provided to prevent erosion.
- The leaks and seepage in the dam shall be prepared. **Exhibit 2-4** indicates the current leaks and seepage in the dam.
- Repair to the galleries and valves are needed so that the dam can operate efficiently.
- The existing spillway shall be upgraded to prevent erosion. The channel immediately downstream should be re-formed to be more hydraulically efficient.
- A small maintenance building ($100m^2$) for the maintenance staff is needed.
- Repairing the dam crest and the destroyed part of its stone masonry (see **Exhibit 2-5)**.

The Project is not a major rehabilitation work. The works are intended to restore the dam and its ancillary structures so that they are fully functional again. The only completely new facility for the dam will be the proposed maintenance building. All repairs shall be made so that the irrigators and other water users are not inconvenienced, especially during the time when water demand is at its peak (April).

The estimated cost for the Project is approximately $430,000. It has been determined that the Zana Khan Dam rehabilitation will be conducted under the supervision of a USAID General Contractor and one or more sub-contractors who will undertake the Project's civil works.

EXHIBIT 2-4. LEAKS AND SEEPAGE IN DAM WALL

EXHIBIT 2-5. BADLY MAINTAINED STONE MASONRY IN DAM WALL

2.3 AFGHAN ENVIRONMENTAL POLICIES AND PROCEDURES

2.3.1 General

In June 2002, for the first time in the history of Afghanistan, an authority for environmental management was mandated in the newly formed government – The Ministry of Irrigation, Water Resources and Environment (MIWRE). A Department of Environment has been created within MIWRE but it does not, at present, have any dedicated staff working specifically on environmental issues and comprises exclusively the Minister, the Deputy Minister for environmental affairs and the Director of Planning. The United Nations Environment Program (UNEP) is currently undertaking a capacity-building program to develop the Department.

2.3.2 Legislative Framework

In the current transition period, it has been determined (Bonn Agreement, 2001) that the 1964 constitution enacted under the monarchy shall continue to govern Afghanistan's legal system. Based on this legal framework, the following laws containing important and valid environmental provisions have been identified:

Environmental Law	Date
Water Law	1981
The Forestry Law	2000
Law for Land Ownership	2000
Nature Protection Law	1986/2000
Hunting and Wildlife Protection Law	2000
Range Management Law	2000
Agriculture Cooperative Development Law	2000
Charter for the Development of Fertilizer and Agro-chemicals	2000

None of the current laws accurately reflect the new institutional arrangements, or contain modern provisions for environmental management. MIWRE has begun to draft a new set of environmental legislation. In the absence of adequate environmental legislation, the Transitional Authority has issued various decrees of sorts banning certain activities, such as hunting. However, it has proven difficult to enforce these measures for reasons such as lack of human resources, funding and, as identified above, lack of capacity.

2.3.3 Local Governance

Throughout its history governance in Afghanistan has been largely based on the provincial, municipal and local levels, and accordingly natural resources are also often managed at these levels rather than centrally in Kabul. For example, water resources were frequently managed by a Mirab (water master) elected by farmers to make key decisions on water distribution, operations and maintenance, as well as to be a link with the government water personnel.

Years of conflict have damaged this local decision-making structure resulting in disparate and fragmented systems. However, given that nearly 80 percent of the population is located in rural areas, the Government has identified a strong future for the re-establishment of local level, community based environmental management.

2.3.4 Afghan Environmental Assessment Procedures

No formal EIA process has been, or is in place, in Afghanistan. As a result many projects, such as deep-well drilling or large-scale irrigation projects, are being conducted without considering the environmental consequences of such activities. Additionally, there is no consistent application of EIA amongst donor agencies and international organizations currently working in the country. There are no clear plans to establish EIA policy at the current time.

EXHIBIT 2-6. ARIAL VIEW OF ZANA KHAN DAM AND RESERVOIR

3.0 ENVIRONMENTAL SCREENING

3.0 ENVIRONMENTAL SCREENING

As noted in Section 1.2, USAID has determined that REFS Component 1 activities require an environmental screening to identify the appropriate level of documentation for infrastructure activities. This section of the IEE provides the necessary screening for the Zana Khan Dam Project.

3.1 SCREENING METHODOLOGY

Introduction. To establish the context for the environmental screening, the following:

- Reviews the definition of environmental criteria as established by the applicable USAID regulations and other considerations;
- Defines the Project Area for the purpose of the screening;
- Explains the screening process used to identify:
  - Potential impacts based on the proposed actions and the sensitivity of the environment in which they will occur;
  - Provisions to avoid or otherwise mitigate actions incorporated in the Project; and
  - Additional recommendations.

A summary table of the screening process is presented by **Exhibit 3-1**. Application of the screening process is documented in **Items 3.2** through **Item 3.5**.

Potential Impact Identification Methodology. Potential impacts have been identified on the basis of experience on similar projects and in similar circumstances; and, insofar as possible, a "scoping process" incorporating consultations with local stakeholders with intimate knowledge of the Project Area. Persons beyond the immediate Project Area having expertise relevant to the environmental aspects of the proposed action have consulted in the process, including representatives of the Afghan and local host governments, public and private institutions, the USAID Mission staff and the staff of other concerned agencies such as the UNEP. A list of organizations and individuals contacted is provided by **Appendix B**.

Environmental Criteria. The environmental criteria applied in the screening process have been determined on the basis of applicable USAID regulations and other considerations as follows:

- **Applicable USAID Regulations**. Paragraph 216.1 (c) (10) of the Agency Environmental Procedures states that the "*term environment, as used in these procedures with respect to effects occurring outside the United States, means the natural and physical environment".* Accordingly, the screening addresses:

  Item 3.2 (Physical Resources). Physical resources are generally defined to include topographic, soil, geological and related attributes. Sub-headings in this section are:

  - Topography (Item 3.2.1)
  - Soils (Item 3.2.2)

EXHIBIT 3-1
POTENTIAL IMPACTS AND MITIGATION

ENVIRONMENTAL CRITERIA	POTENTIAL IMPACTS	Avoidance / Mitigation Action
1.0 PHYSICAL RESOURCES		
1.1 Topography & Land Forms	Embankments	Provisions for the treatment of slops to ensure stabilization are incorporated in the contract provisions. No borrow pits will be excavated.
	Quarry Operations	Only licensed quarrying operations are to be used; if licensed quarries are not available the Sub-Contractor will be responsible for setting up their dedicated crusher plants at approved quarry sites.
	Erosion/Scour	Rehabilitation of an existing spill ways and other drainage facilities is planned. Accordingly, no significant adverse erosion/scour impacts area anticipated. No mitigation actions required.
1.2 Soils	Erosion/Scour	See above
	Contamination Due to Spills	Fuel and chemical storage will be sited on an impervious base within a bund and secured by fencing. The storage area shall be located away from any watercourse or wetlands. The base and bund walls shall be impermeable and of sufficient capacity to contain 110 percent of the volume of tanks. Filling and refueling shall be strictly controlled and subject to formal procedures. All valves and trigger guns shall be resistant to unauthorized interference and vandalism and be turned off and securely locked when not in use. The contents of any tank or drum shall be clearly marked. Measures shall be taken to ensure that no contaminated discharges enter any drain or watercourses.The contract specifications also require the preparation of an Emergency Response Plan to deal with accidents and emergencies, including environmental/public health emergencies associated with hazardous material spills and similar events.
1.3 Seismic & Geological Characteristics	Demand for Quarried Materials	Only licensed quarrying operations are to be used; if licensed quarries are not available the Sub-Contractor will be responsible for setting up their dedicated crusher plants at approved quarry sites.
	Seismic Vulnerability	Earthquake Loading Design is specified for the Project.
1.4 Hydrology	Surface Hydrology	Impacts to surface hydrology will be limited to the cessation of seepage from the dam. No significant interruptions or diversions or flow are anticipated. No significant increase in water usage is anticipated. Potential impacts during the rehabilitation process will be mitigated through coordination with local land use planning authorities and local residents. Construction camps and other potential sources of secondary impacts must be properly sited and provided with drainage and wastewater facilities. During rehabilitation all projects works should impact as little as possible on the supply of water to the downstream irrigation system and subsequent agricultural lands. There will be no disruption to water supply during canal rehabilitation works, all waters shall be diverted to ensure constant supply. Rehabilitation activities should be timed so minimal disruption to agricultural areas is achieved. On embankment areas less than three meters in height and where surface runoff is low, ditches shall be placed adjacent to the toe. For higher fills (if any), the ditch shall be separated from the fill by a three-meter wide bench. Construction-related interference with the supply to, of abstraction from, of the pollution of, water resources is prohibited. The Sub-Contractor shall not discharge or deposit any matter arising from the execution of the Work into any waters except with the permission of the regulatory authorities concerned. Existing stream courses and drains must be kept safe and free from any debris and any materials.
	Area Wetland	No wetlands of significant biological importance are within the potentially affected area. No mitigation actions, other than those incorporated in the Project, are warranted.
	Subsurface Hydrology	No impacts to subsurface hydrology are anticipated. The Sub-Contractor is required to prevent interference with the supply to, of abstraction from, or pollution of, water resources including underground percolating water…"
	Flood characteristics	No impacts resulting from flood conditions are anticipated. No mitigation actions required.

1.5 Air Quality	Rehabilitation Impacts	- The Sub-Contractor will be required to spray road surfaces, excavation and construction sites. - Trucks carrying earth, sand or stone will be covered with tarps. - Contract provisions allow suspension of work in unfavorable condition. - Machinery and equipment will be fitted with pollution control devices and checked at regular intervals. - Open burning will be prohibited in populated areas.
1.6 Mines and Unexploded Ordnance	Uncontrolled Detonation	The Project has received a Certificate from the United Nations Mine Action Center that there are no mines/UXO at or near the site.
2.0 NATURAL/BIOLOGICAL RESOURCES		
2.1 Flora	Destruction of Habitat	The project is not anticipated to have significant negative impacts to flora within the vicinity of the Dam. Rehabilitation of the dam is expected to have positive impacts on local flora and vegetation habitat.
2.3 Fauna	Destruction of Habitat	The project is not anticipated to have significant negative impacts to fauna within the vicinity of the Dam.
2.3 Aquatic Habitat	Destruction of Habitat	The project is not anticipated to have significant negative impacts on natural habitats within the vicinity of the Dam.
2.4 Protected Areas	Rehabilitation Impacts	There are no protected areas within 75 kilometers of the Project site.
3.0 OTHER ENVIRONMENTAL CONCERNS NOTED BY 22 CFR 216		
3.1 Land Use/Controls	Potential PAPs Impacts	Impacts to project-affected persons (PAPs) as that term is generally defined by the international assistance community (i.e., persons whose livelihood is directly or indirectly affected by a project) have been identified and a mitigation program has been devised as described herein.
	Rehabilitation Impacts	Coordination with local land use planning authorities is required. Construction camps and other potential sources of secondary impacts must be properly sited and provided with drainage and wastewater facilities.
	Operational Impacts	Impacts are expected to be minimal. No mitigation actions warranted.
3.2 Energy	Exploitation of Energy Resources	Impacts are expected to be minimal. No mitigation actions warranted.
	Demand for Petroleum Products	Impacts are expected to be minimal. No mitigation actions warranted.
3.3 Natural Resources	Exploitation of Natural Resources	Impacts are expected to be minimal. No mitigation actions warranted.
	Demand for Construction Materials	Impacts are expected to be minimal. No mitigation actions warranted.
3.4 Urban Quality	Impacts to Roadside Structures and Activities	Impacts are expected to be minimal. No mitigation actions warranted.
3.5 Historic & Cultural Resources	Demolition or Damage Due to Rehabilitation	No sites of historical or cultural significance have been observed within vicinity of the Project that maybe affected by Project activities. However, contractors are required to consult with provincial-level representatives of the Archaeological Committee under the Ministry of Information and Culture, obtain any necessary clearances in regard to historic and cultural resources prior, and provide written documentation of these consultations to the Contractor prior to the initiation of work. In the event of unanticipated discoveries of cultural or historic artifacts, the Sub-Contractor is obligated to shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives of the Archaeological Committee and the Ministry of Information and Culture. If continuation of the work would endanger the finding, project work shall be suspended until a solution for preservation of the artifacts is agreed upon.

4.0 ADDITIONAL ENVIRONMENTAL CONCERNS RAISED BY SIMILAR PROJECTS		
4.1 Socio-Economic Considerations	Impacts are Deemed Beneficial	No mitigation actions warranted.
4.2 Public Health	Disease Transmission	The Sub-Contractor is required to provide basic emergency heath facilities for worker; and encourage programs aimed at the prevention of sexually transmitted diseases as a part of all construction employee orientation programs.
	Access to Heath Facilities	Access to health facilities will not be affected by Project activities. No mitigation actions required.
	Contamination Due to Spills	See Item 1.4 above.
	Air and Noise Impacts	See Item 1.5 above.
4.3 Safety	Conflicts with NMT	Impacts are expected to be minimal. No mitigation actions warranted.
	Detours & Diversions	Impacts are expected to be minimal. No mitigation actions warranted.
	Excessive Speeds	Impacts are expected to be minimal. No mitigation actions warranted.
4.4 Other Infrastructure Networks	Water Supply & WW Collection Networks	Impacts are expected to be minimal. No mitigation actions warranted.
	Irrigation Systems	Impacts will be beneficial.

- Seismic & Geological Conditions (Item 3.2.3)
- Hydrology (Item 3.2.4)
- Climate and Air Quality (Item 3.2.5)
- Mines and Unexploded Ordnance (Item 3.2.6).

Item 3.3 (Natural/Biological Resources) - the natural/biological aspects of the potentially affected environment. These are discussed under the sub-headings of:

- Fauna (Wildlife) (Item 3.3.1)
- Flora (Plant Species) (Item 3.3.2);
- Aquatic Habitat (Item 3.3.3); and
- Protected Areas (Item 3.3.4).

In addition to these requirements, Paragraph 216.6 of the Procedures states that "… *Environmental Assessment(s) should include discussions of ….. possible conflicts between the proposed action and land use plans policies and controls for the areas concerned; energy requirements and conservation potential of various alternatives and mitigation measures; natural or depletable resource requirements and conservation potential of various requirements and mitigation measures; urban quality; historic and cultural resources; design of the built environment; reuse and conservation potential of various alternatives and mitigation measures; and means to mitigate adverse environmental impacts*". Accordingly, these issues are addressed under the following heading and subheadings:

Item 3.4 (Other Environmental Concerns Noted by 22 CFR 216) describes these aspects of the environment under the following sub-headings:

- Land Use and Development Policies & Controls (3.4.1)
- Energy & Conservation (3.4.2)

- Use of Natural/Depletable Resources (3.4.3)
- Urban Quality/Design of the Built Environment (3.4.4)
- Historic and Cultural Resources (3.4.5)
- Reuse & Conservation (3.4.6)

- **Additional Considerations Generally Associated with Rehabilitation Projects.** Additional environmental issues are generally associated with rehabilitation projects and are addressed as:

  Item 3.5 (Additional Environmental Concerns Noted for Consideration). These are discussed under the sub-headings of:

  - Socio-Economic Considerations (Item 3.5.1);
  - Public Health and Safety (Item 3.5.2),
  - Noise (Item 3.5.3) and
  - Other Infrastructure Networks (Item 3.5.4).

Definition of the Project Area. The potentially impacted area of a given project (generally referred to as the Project Area) is defined by the nature of the proposed action and the sensitivity and circumstances of the environment in which it will occur.

Potential direct impacts of a project such as the Zana Khan Dam will be largely confined to the Project's construction limits and immediately adjacent environs. The conceptual limits of the Project Area must be expanded, however, to include the potential impacts of network improvements and other indirect and cumulative impacts in accordance with the circumstances of the particular environmental characteristic under discussion.

The scope of the examination must be expanded to ensure that environmental impacts of potential down-stream hydraulic impacts, for example, are taken into account. Generally, however, given the limited nature of the action included in the Project limit the potential for direct impact to the immediate environs of the dam and irrigation system. Indirect impacts will occur within a band along the irrigation channel downstream of the dam.

Types of Impacts Considered. Environmental consequences resulting from the impacts of rehabilitation projects include:

- Direct Impacts - i.e., those directly due to the Project itself such as the conversion of land previously used for agricultural. Direct impacts also include the impact of rehabilitation expenditures in the local economy.

- Indirect Impacts - i.e., those resulting from activities prompted by the Project, but not directly attributable to it. The use of rock or crushed brick for project works, for example, has an indirect impact of increasing the demand for these materials.

- Cumulative Impacts - i.e., impacts in conjunction with other activities.

Impacts in all three categories may be either:

- Short-term – i.e., impacts which occur during rehabilitation and affect land use, air quality and other factors. Many of these impacts, however, will be short-lived and without long-lasting effects. Even the effects of some relatively significant impacts may be eventually erased if appropriate mitigation actions are taken. Many potential short-term negative impacts can be avoided or otherwise mitigated through proper engineering designs and by requiring Sub-Contractors to apply environmentally appropriate construction methods. Or;

- Long-term – Long-term negative impacts can result from the loss of agricultural land to other land uses; air and water pollution and haphazard growth.

Both short-term and long-term impacts may be either beneficial or adverse. Short-term positive impacts will include, for example, the generation of employment opportunities during the rehabilitation period. Long-term benefits will include enhanced development opportunities, improved agricultural output and economic growth.

Determination of the Scope & Significance of Issues. To determine the scope and significance of issues to be analyzed, including direct and indirect effects of the Project on the environment, the following examines each environmental criterion identified above and presents:

- Existing Conditions. The current statement of existing conditions is drawn primarily from site observations in April and August 2003.

- Potential Impacts and Avoidance/Mitigation Measures. Potential impacts and measures incorporated in the Project to avoid or otherwise mitigate the potential impacts are identified. These include measures incorporated in contracting procedures and the Project design. Cognizance of the Project's design and contracting provisions is deemed to be an important means of "*narrowing the discussion of these issues to a brief presentation of why they will not have a significant impact on the environment"* in accordance with the 22 CFR 216 Procedures.

- Additional Recommendations. The examination also identifies the issues for which mitigation beyond that already incorporated in the Project design and standard contracting procedures are considered warranted, including recommendations beyond the scope of the Zana Khan Dam Project, but within the scope of REFS.

3.2 PHYSICAL RESOURCES

3.2.1 Topography

Existing Conditions. Approximately 65 percent of Afghanistan's land area is mountainous, with more than a quarter above 2,500 meters above mean sea level (msl). The site of the Zana Khan Dam Project is located in the Zana Khan District within Ghazni Province. The dam is situated at an elevation of 2,480 meters above msl. No unusual topographic conditions in the area have been identified. **Exhibit 3-2** illustrates the topography within the vicinity of the dam and irrigation system.

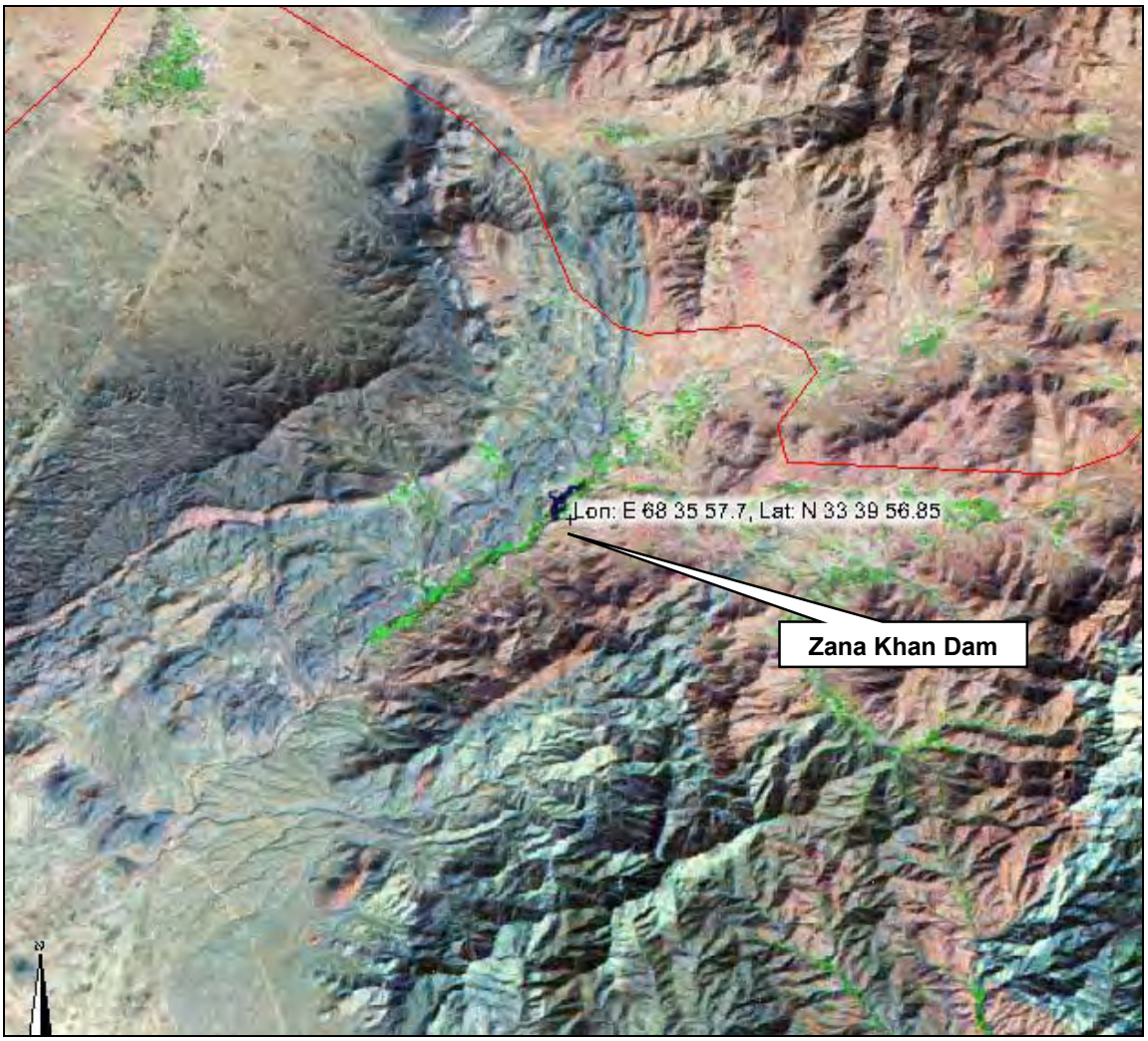

EXHIBIT 3-2. ZANA KHAN DAM SATELLITE IMAGE

Potential Impacts and Planned Avoidance/Mitigation Actions. Potential impacts to topographic conditions of dam projects are generally associated with:

- Cut and Fill. Some minor cut activity may be necessary associated with rehabilitation of the spillway on the right bank. To avoid adverse impacts due to these activities the Conditions of Particular Application (COPA) portion of the Conditions of Contract include provisions to ensure:

  - Selection of less erodable material, placement of gabions and riprap and good

compaction, particularly around bridges and culverts.

- Stabilization of embankment slopes as warranted.

- Completion of discharge zones from drainage structures with riprap to reduce erosion when required.

- Down drains/chutes lined with rip-rap/masonry or concrete to prevent erosion.

- Side slopes adjusted in the range based on soil and other conditions as specified by the Project Specifications to reduce erosion potential.

- Quarry Operations. To ensure adequate mitigation of potential adverse impacts, contract documents will specify only licensed quarrying operations are to be used for material sources.

- Erosion and Scour. Provisions for the control of erosion are discussed as a part of the discussions for soils and hydrology below.

Additional Recommendations. None warranted. Provisions incorporated in the design, contracting process and provisions for contract supervision are such that the potential for adverse impacts to topography is obviated.

3.2.2 Soils

Existing Conditions. Little data regarding the soils of this particular area of Afghanistan is available. **Exhibit 3-3** indicates however, that the soils in this region are of a Mesic nature, i.e., sites, habitats and soils characterized by intermediate moisture conditions, i.e., neither decidedly wet nor decidedly dry.

Potential Impacts & Planned Avoidance/Mitigation Actions. Impacts to soils generally associated with rehabilitation projects such as the Zana Khan Dam include:

- Loss of Soil for Agricultural Production. No loss of agricultural land is anticipated to result from Project activities. Project works are expected to enhance agricultural productivity in the area by improving the efficiency of the Zana Khan Dam.

- Erosion & Scour. Project works are not expected to induce any erosion or scour impacts in the Project Area.

- Conversion of Agricultural Soils Due to Indirect/Induced Impacts. Project works are expected to enhance agricultural productivity in the area. No mitigation is warranted.

- Contamination Due to Spills or Hazardous Materials. Provisions for the control of hazardous materials and actions to be taken in the event of accidental spills are incorporated in contract to avoid adverse impacts due to improper fuel and chemical storage as follows:

  - All fuel and chemical storage (if any) shall be sited on an impervious base within a bund and secured by fencing. The storage area shall be located away from any watercourse or wetlands. The base and bund walls shall be impermeable and of sufficient capacity to contain 110 percent of the volume of tanks.

  - Filling and refueling shall be strictly controlled and subject to formal procedures.

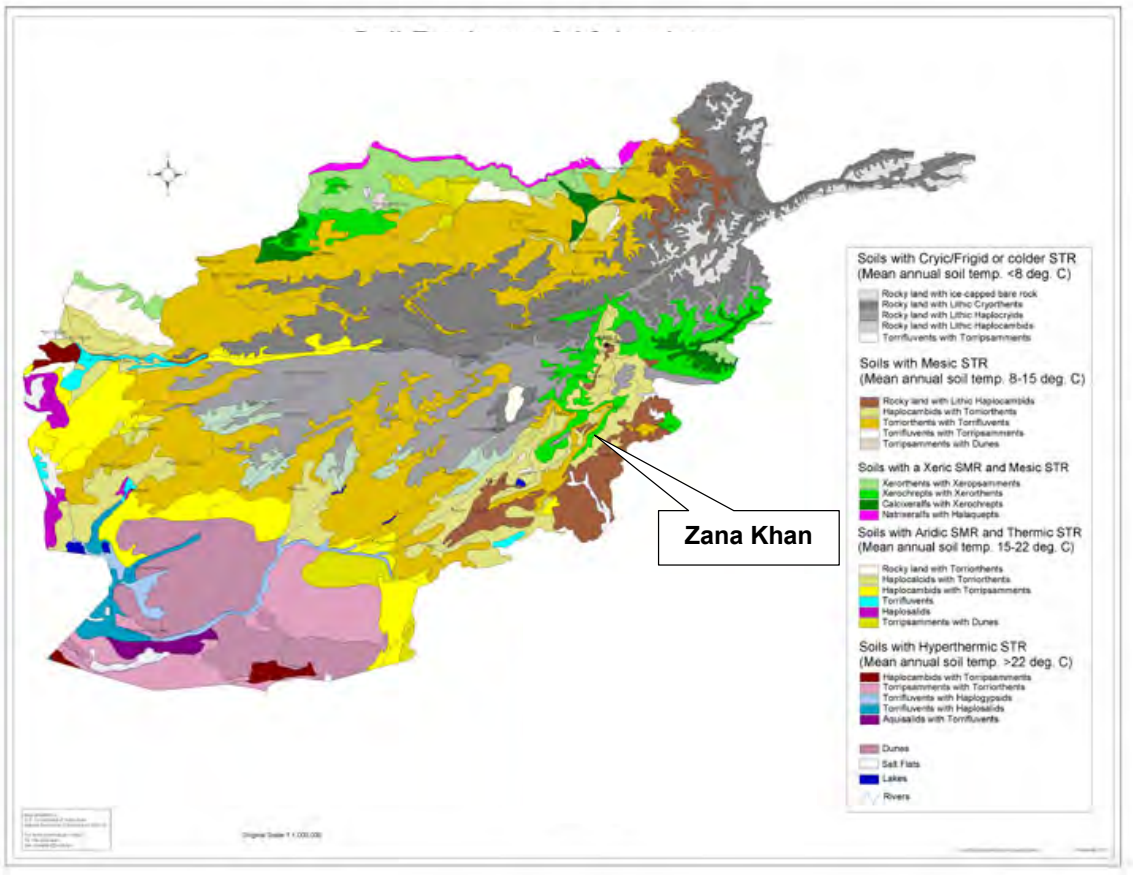

EXHIBIT 3-3. SOILS OF AFGHANISTAN

- All valves and trigger guns shall be resistant to unauthorized interference and vandalism and be turned off and securely locked when not in use.

- The contents of any tank or drum shall be clearly marked. Measures shall be taken to ensure that no contaminated discharges enter any drain or watercourses.

The contract specifications also require the preparation of an Emergency Response Plan to deal with accidents and emergencies, including environmental/public health emergencies associated with hazardous material spills and similar events.

Additional Recommendations. None warranted.

3.2.3 Seismic & Geological Characteristics

Existing Conditions.[1] Afghanistan's geological circumstances are complex and generally described in terms of plate tectonics, i.e., the premise that the earth's crust is made up of continent-sized slabs of rocks or plates which float on a more fluid layer of material known as the mantle. The plates move, collide, break up and reform as a result of currents and upwellings in the mantle. The mountain chains comprised of the Hindu Kush, Pamir, Karakoram and Himalayan Ranges are believed to have been the result of a collision of the Indian Plate and Asia Plate which began approximately 50 million years ago and continues to the present day. Much of the country is known to be seismically active.

1 Geological resources such as coal and gem stones are discussed as part of **Item 3.3.3**, Use of Natural and Depletable Resources.

The underlying geology in this area is classified as Tertiary Igneous rock. The dam is 26 meters high, with an approximate maximum width at the base of the dam of 30 meters. The foundation depth of the dam is unknown. The existing dam is constructed from local material such as stone with lime mortar.

There is a history of damaging earthquakes that are most frequent in the northeast of Afghanistan. The Zana Khan Dam is located in Zone 4 and is potentially prone to earthquakes of over 7.3 on the Richter scale.

Potential Impacts & Planned Avoidance/Mitigation Actions. The Project may present a limited demand for quarried materials, but is unlikely to have an impact on the area's geological resources. The Project will not add appreciably to the human risk due to seismic events.

Additional Recommendations. None warranted.

3.2.4 Hydrology

Existing Conditions. The sources of most of Afghanistan's rivers are in the mountains. Water levels in the rivers vary greatly with the highest levels in spring and early summer. In the remaining seasons the rivers may change into small streams or entirely disappear. Three watershed systems can be differentiated in Afghanistan:

- The Eastern Basin (Indus). The Eastern Basin includes the Kabul and Logar Rivers and their tributaries which drain the eastern part of the country. The rivers within the eastern basin flow generally to the east and eventually join the Indus River and the Arabian Sea. The Zana Khan Dam is located within the Eastern Basin in the Kabul watershed (See **Exhibit 3-4**).

- The Southern Basin (Sistan-Hilmand). The rivers of the Southern Basin flow generally to the southwest to the Lake of Sistan on the Afghanistan-Iran border and include the Helmand, the country's longest river, the Farah and the Khash.

- The Northern Basin (Amu Darya). The rivers in the northern part of the country flow northward to the Amudarya River on the country's northern boundary (and eventually to the Ariel Sea) or disappear in the desert sands.

The Zana Khan reservoir is of irregular shape with a maximum width of approximately 400 meters and a length of 750 meters (see **Exhibit 2-3**). The reservoir is surrounded by mountains and agricultural land, run-off from these surrounding mountains (rain water, snow melt and natural springs) supplies the reservoir with its waters. However, as a result of the run-off from the sparsely vegetated surrounding slopes large volumes of sediment are deposited into the reservoir during the peak run-off periods (April), subsequently the sediment load decreases the capacity of the dam. Sedimentation of the reservoir is visibly evident within the reservoir, notably adjacent to the dam wall (see **Exhibits 3-5 & 3-6)**. The dam provides downstream water for irrigation purposes to Rauzwa, a village approximately 20 kilometers downstream which acquired the sole water right from the dam through an order from the GoA in 1964. Two other villages in Zana Khan District are using the water from seepage waters, leakage and the spillway discharge during spring and autumn. Water from the reservoir irrigates some 2,000 hectares of farmland downstream. A sketch map of the Zana Khan Dam and the irrigated land downstream can be found in **Appendix C**.

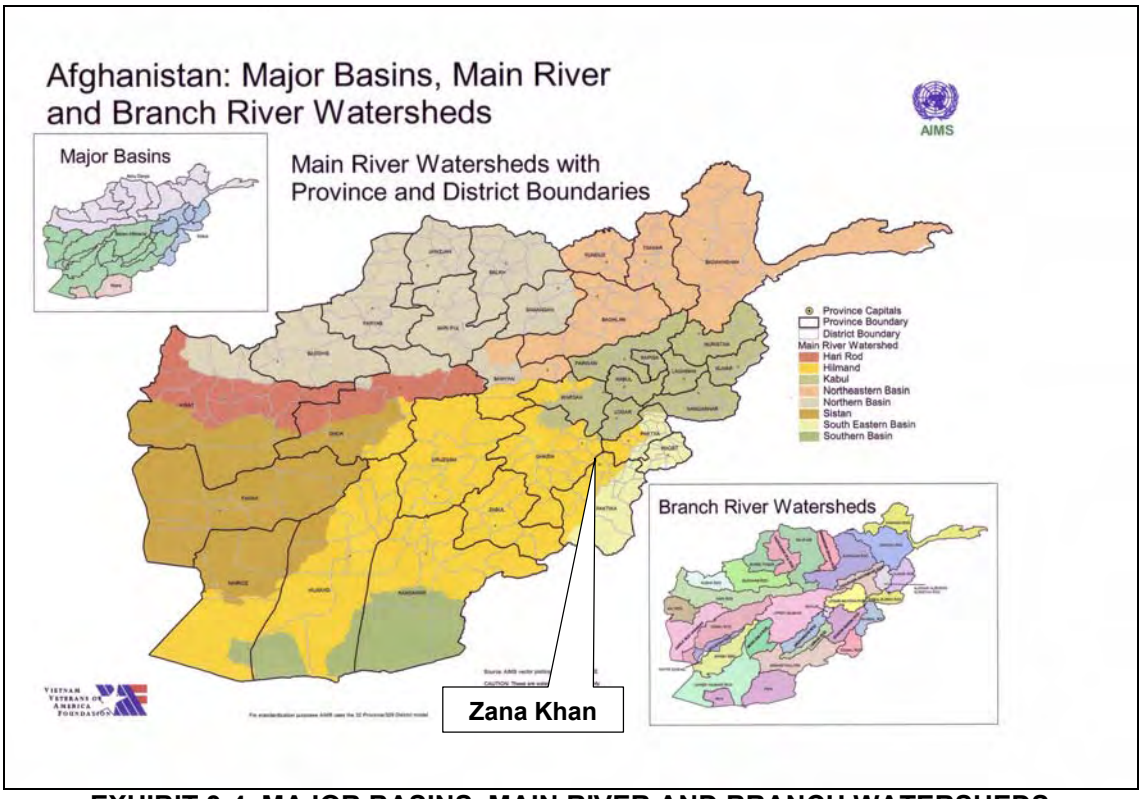

EXHIBIT 3-4. MAJOR BASINS, MAIN RIVER AND BRANCH WATERSHEDS

Potential Impacts and Planned Avoidance/Mitigation Actions. Potential impacts due to rehabilitation could include impacts to:

EXHIBIT 3-5. SEDIMENTATION OF ZANA KHAN RESERVOIR RIGHT BANK

- Surface Hydrology. Potential adverse impacts to surface hydrology in the rehabilitation phase of the Project will be avoided through the enforcement of contract provisions and oversight by the USAID/GC. Drainage provisions and other aspects of the Project are not expected to alter the current status of natural water bodies and irrigation structures. In addition to adherence to good engineering and construction practices and the enforcement of contract provisions related to drainage during both the rehabilitation and operational stages of the Project Sub-Contractors will be obligated to coordinate with local land use planning authorities. Contract provisions will ensure that construction camps and other potential sources of secondary impacts are properly sited and provided with drainage and wastewater facilities. On embankment areas less than three meters in height and where surface runoff is low, ditches shall be placed adjacent to the toe. For higher fills (if any),

the ditch shall be separated from the fill by a three-meter wide bench. (Note: wetland issues are separately discussed below.)

The COPA portion of the Conditions of Contract state that "*The Sub-Contractor shall prevent interference with the supply to, of abstraction from, of the pollution of, water resources …. as a result of the execution of the Works. Areas where water is repeatedly used for dust suppression purposes (if any) shall be laid to fall to especially constructed settlement tanks to permit sedimentation of particulate matter. After settlement, the water may be re-used for dust suppression and rinsing. All water and other liquid waste products arising on the Site shall be collected and disposed of at a location on or off the Site and in a manner that shall not cause either nuisance or pollution. The Sub-Contractor shall not discharge or deposit any matter arising from the execution of the Work into any waters except with the permission of the regulatory authorities concerned. The Sub-Contractor shall at all times ensure that all existing stream courses and drains within and adjacent to the Site are kept safe and free from any debris and any materials arising from the Works. The Sub-Contractor shall protect all watercourses, waterways, ditches, canals, drains, lakes and the like from pollution, silting, flooding or erosion as a result of the execution of the Works*."

The villages downstream currently using seepage water for irrigation will be affected by the rehabilitation of the dam. The USAID General Contractor is currently preparing an Irrigation Study to assess this issue and to provide an amicable solution to this potential problem with the help of the people of Rauwza. This may include an agreement with the people of Rauwza to allow a permanent legal supply of irrigation waters to the downstream villages to ensure these villages do not suffer from the cessation of seepage from the dam.

EXHIBIT 3-6. SEDIMENTATION OF ZANA KHAN RESERVOIR

- Wetlands. The Zana Khan Dam is located in the Southern Basin (the Sistan-Hilmand Watershed) north (upstream) of the Ab-I-Estada Waterfowl Sanctuary and *Istadeh-ye Mogor*. Outflow from the dam (when sufficient) flows to Ghazni River and ultimately *Istadeh-ye Mogor* approximately 100 kilometers south of the dam site. No significant interruption of flow due to the rehabilitation is anticipated. No mitigation actions, other than those incorporated in the Project (maintenance of flows and prevention of inadvertent spills of hazardous materials, etc.) are considered warranted due to wetland considerations.

- Subsurface Hydrology. No significant impacts to subsurface hydrology are anticipated. As a contingency, however, the COPA portion of the Conditions of Contract specifically provide that "*The Sub-Contractor shall prevent interference with the supply to, of abstraction from, or the pollution of, water*

resources ….including underground percolating water…"

- Flood and Inundation Characteristics. Project actions are not expected to have significant negative affects on flood and inundation characteristics within the Project Area.

Additional Recommendations. None warranted.

3.2.5 Air Quality and Climate

Existing Conditions. The climate of Afghanistan is continental in nature, with cold winters and hot summers. Most of the country is arid or semi arid, with low amounts of precipitation and high variability between years. The mean daily temperatures at Ghazni station (approximately 24 kilometers south, see **Exhibit 2-2**) range from 5.6° C in January to 23.3° C in July. The mean monthly precipitation varies from just traces in August and September to 89 millimeters in April. Snowfall is common from December to March. **Exhibit 3-7** illustrates average monthly precipitation by season in Afghanistan. No unusual air quality or micro-climate conditions in the Project Area have come to light.

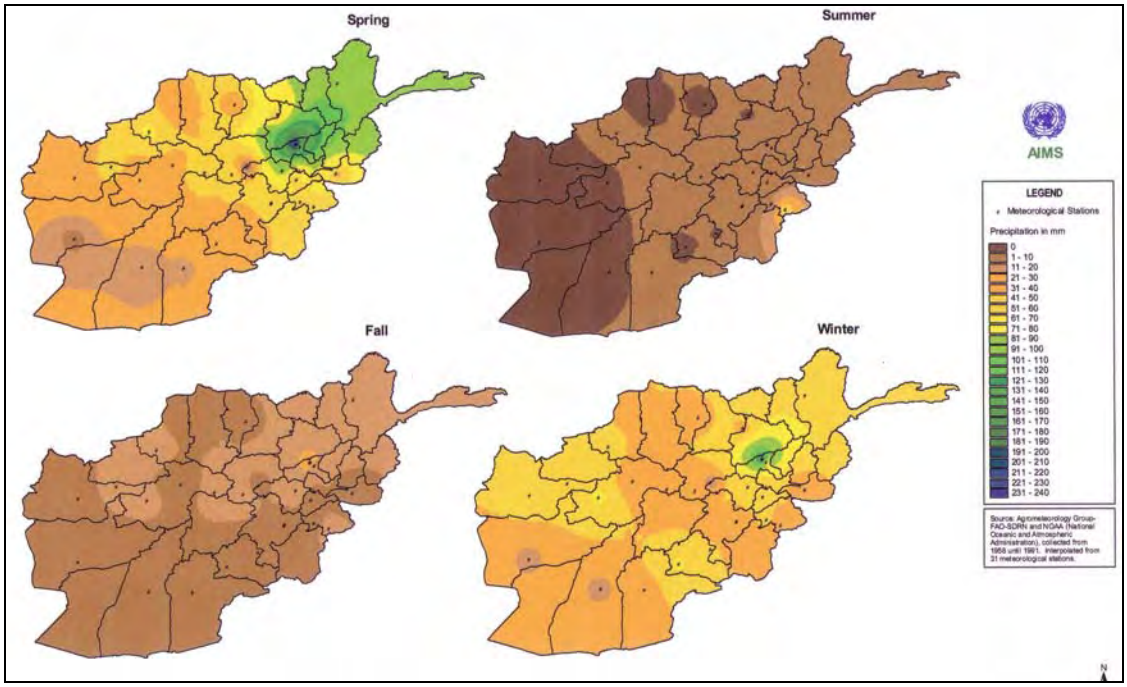

EXHIBIT 3-7. AVERAGE MONTHLY PRECIPITATION BY SEASON

Potential Impacts and Planned Avoidance/Mitigation Actions. Potential air quality impacts are can be hypothesized in both the rehabilitation and operational stages of the Project are as follows:

- Rehabilitation Stage. Minor impacts to local air quality during rehabilitation can be anticipated due to fugitive dust generation in and around rehabilitation activities and related activities. The generation of dust due to rehabilitation activities will be mitigated through avoidance strategies and monitoring. Contract documents will specify that:

  - Sub-Contractors will be required to spray excavation and rehabilitation sites to keep them moist for dust control.

- Trucks carrying earth, sand or stone will be covered with tarps to avoid spilling.

- Potential significant adverse impacts to adjacent residents or site employees during project works will be mitigated by either discontinuing until favorable conditions are restored, or, if warranted, sites may be watered to prevent dust generation.

- Machinery and equipment will be fitted with pollution control devices, which will be checked at regular intervals to ensure that they are in working order. Best practical pollution control technologies will be required.

- Open burning will be prohibited in populated areas and requirements for spraying and related dust control measures and the proper use of solvents and volatile materials will be in incorporated in the contract provisions.

- Pre-construction monitoring of existing ambient air quality may be undertaken to provide a baseline for the measurement of air quality impacts during the rehabilitation period if considered warranted by the USAID/GC.

- Routine air quality monitoring may also be required in areas of high potential impact (construction camps, etc) during the life of the Project if considered warranted by the USAID/GC.

Operational Stage. No operation impacts affecting climate or air quality are anticipated during the operational phase of the Project.

Additional Recommendations. Other than verification of provisions noted within the contract documents, none warranted.

3.2.6 Mines and Unexploded Ordnance

Existing Conditions. Special provisions have been made by USAID for the clearance of mines and UXO by the United Nations Mine Action Center (UNMAC).[2] A certificate has been received from UNMAC that there are no mines or UXO in the Project Area.

Potential Impacts and Planned Avoidance/Mitigation Actions. None.

Additional Recommendations. None warranted.

3.3 NATURAL/BIOLOGICAL RESOURCES

3.3.1 Flora

Existing Conditions. Located at the confluence of two biogeographic realms – the Palaeoarctic and Indo-Malayan – Afghanistan has the unique distinction of being the original home of a very large number of plant and animal species, a majority of which are endemic. As witnessed by the many observations recorded by Babur, the founder of the Mughal dynasty who ruled Afghanistan from 1483-1530, the country was renowned for its rich wildlife and with its diversity of habitats. Afghanistan retains a wide variety of fauna. However, most of the country is subject to some degree of land degradation, notably that resulting from some 20 years of war, deforestation and desertification.

2 REFS Contract, page C-8.

Flora in the Project Area is relatively sparse as indicated by **Exhibit 3-8.** However, small areas of irrigated land utilized for agricultural activities are evident around the reservoir. **Exhibit 3-8** also illustrates the small oasis of plant life (small scrubby bushes and several species of tree) currently flourishing at the foot of the dam wall resulting from a regular water supply from the leaking dam, indeed, a small tree was observed (August 2003) growing some 15 meters up the face of the dam wall, thriving on seepage water. No protected species have been identified in the Project Area.

EXHIBIT 3-8 VEGETATION COVER BELOW DAM WALL

Potential Impacts and Planned Avoidance/Mitigation Actions. No potentially significant impacts to flora have been identified. Impacts to plant life and agricultural crops during project works will be mitigated through the appropriate construction supervision activities to ensure that ancillary features are properly sited.

Additional Recommendations. None warranted.

3.3.2 Fauna

Existing Conditions. Afghanistan is home to 119 species of mammals, 460 species of birds, four species of reptiles, and hundreds of species of insects and fish[3]. Thirty five species of animals have been listed as either vulnerable or endangered on the ICUN Red List, however, the number of threatened species may be higher as essentially no wildlife research has been undertaken in Afghanistan for many years.

Consultation with local residents revealed that the most prominent animal species in this area were fox, wolf, and rabbit. The factors that make the Project and the adjacent areas an unlikely venue for threatened and endangered plant species also make it an unlikely site for special status terrestrial wildlife species.

Potential Impacts and Planned Avoidance/Mitigation Actions. Consideration has been given to potential direct impact to wildlife under the following headings:

- Habitat Loss. No significant terrestrial habitat loss is anticipated due to direct or indirect impacts.

- Wildlife Migrations. No evidence has come to light indicating that the proposed Project interrupts wildlife migration corridors. The Project will not interrupt any migratory patterns of wildlife species.

Additional Recommendations. None warranted.

3 www.icimod.org.np/focus/biodiversity/afgbio.htm

3.3.3 Aquatic Environment

Existing Conditions. Due the heavy sediment load of the Zana Khan Reservoir no aquatic vegetation or wildlife are apparently present within its waters.

Potential Impacts and Planned Avoidance/Mitigation Actions. Given the limited nature of the rehabilitation works impacts will be minimal.

Additional Recommendations. None warranted.

3.3.4 Protected Areas

Existing Conditions. Six protected areas have been identified in the country. They are described below and indicated by **Exhibit 3-9**. None is within 75 kilometers of the Project Area.

- **Ab-I-Estada Waterfowl Sanctuary**. Established in 1977, Ab-I-Estada Waterfowl Sanctuary (27,000 hectares) is located in conjunction with *Istadeh-ye Mogor*, a large lake north of the town of Nawah. The lake is fed by the Ghazni River and its tributaries, including the outflow from the Zana Khan Dam when sufficient. *Istadeh-ye Mogor* is located more than 100 kilometers south of the dam and drought conditions in the area are such that the out flow often evaporates or disappears underground. No significant interruptions or alterations of the normal flow to *Istadeh-ye Mogor* is anticipated as a result of the rehabilitation activities.

- **Ajar Valley Wildlife Reserve**. Established in 1978, the Ajar Valley Wildlife Reserve (40,000 hectares) is a former royal hunting ground located in Bamian Province in the central part of the country. The Reserve is more than 200 kilometers from the Project Area in a separate watershed.

- **Bande Amir National Park**. Established in 1973, the Bande Amir National Park (41,000 hectares) is also located in Bamian Province near the Ajar Valley Wildlife Reserve in the central part of the country. The Park is located more than 200 kilometers from the Project Area in a separate watershed.

- **Dashte-Nawar Waterfowl Sanctuary**. Established in 1977, the Dashte-Nawar Waterfowl Sanctuary (7,500 hectares) is located in Ghazni Province. The sanctuary is located more than 75 kilometers from the Project Area in a separate watershed.

- **Pamir Buzurg Wildlife Sanctuary**. Established in 1978, the Pamir Buzurg Wildlife Sanctuary (67,938 hectares) is located in the extreme northeastern part of the country and well more than 200 kilometers from the Project Area in a separate watershed.

- **Kole Hashmat Khan Waterfowl Sanctuary (established 1973)**. Established in 1973, the Kole Hashmat Khan Waterfowl Sanctuary (191 hectares) is a former royal hunting ground located south of Kabul more than 100 kilometers from the Project Area in a separate watershed

Potential Impacts and Planned Avoidance/Mitigation Actions. No potential impacts identified with Project Activities

Additional Recommendations. None warranted.

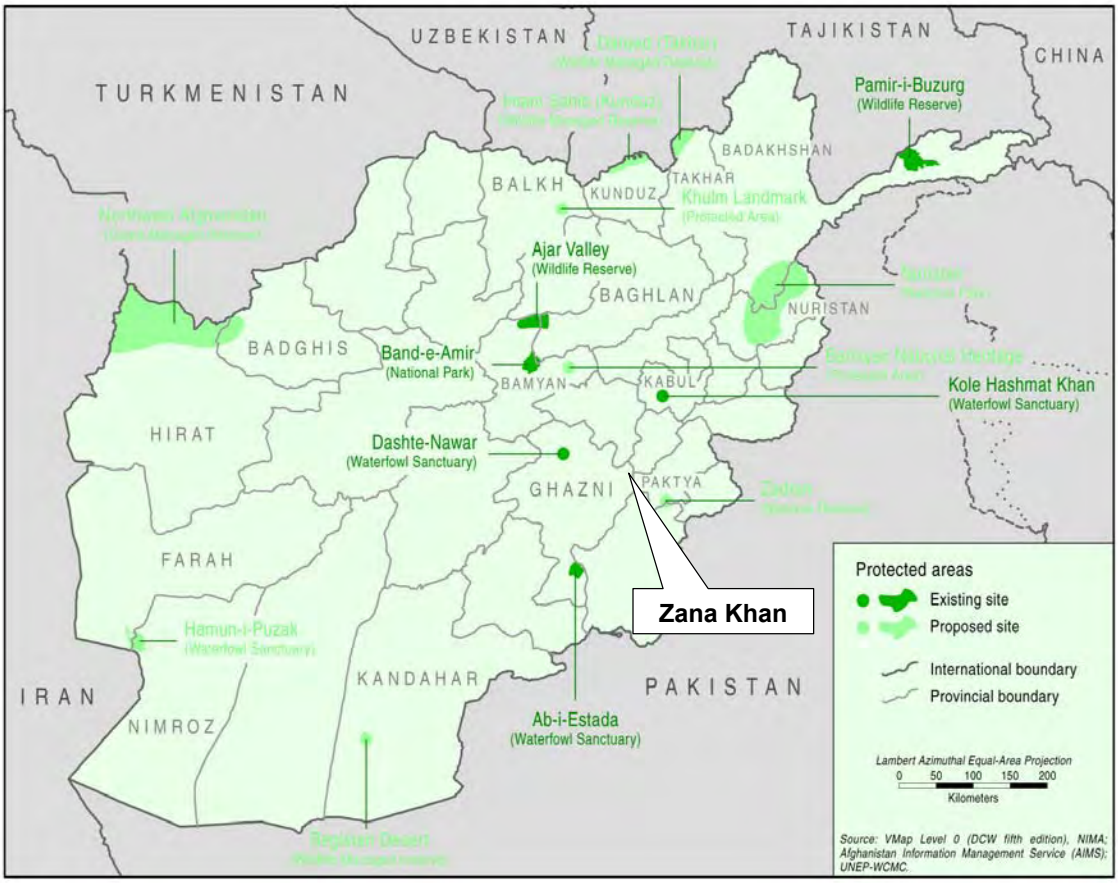

EXHIBIT 3-9. PROTECTED AREAS OF AFGHANISTAN

3.4 OTHER ENVIRONMENTAL CONCERNS NOTED BY 22 CFR 216

As noted in the introductory remarks, issues addressed in this section are discussed under the following headings:

- Land Use and Development Policies & Controls (3.4.1)
- Use of Natural/Depletable Resources (3.4.2)
- Urban Quality/Design of the Built Environment (3.4.3)
- Historic and Cultural Resources (3.4.4)
- Energy & Conservation (3.4.5)
- Reuse & Conservation (3.4.6)

3.4.1 Land Use and Development Policies & Controls

Existing Conditions. As of 1988, approximately 12 percent of Afghanistan's land was estimated to be arable, but that none was devoted to permanent crops.[4] Land uses within the vicinity of the Project Area can be characterized as follows:

- Rangeland. In and around the dam and reservoir the predominant land use is rangeland. **Exhibit 3-7** illustrates the rangeland within the vicinity of the dam.

4 CIA Profile

- Agricultural Land. Small pockets of agricultural land are evident adjacent to the reservoir and south west of the dam. **Exhibit 3-1** illustrates the extent of irrigated land in the region. Anecdotal information suggests that the main crop produced in the Zana Khan District is wheat.

- Urban. A small village (Zarak Village) is located adjacent to the reservoirs left bank. The village's main economic activity is farming (both crops and cattle).

Land use and development policies and controls are largely within the purview of the Ministry of the Interior (MOI) as the agency responsible for municipal governance and oversight. No policies or controls have been identified which will impact upon the rehabilitation works.

Potential Impacts and Planned Avoidance/Mitigation Actions. Potential land use impacts vary between the rehabilitation and operational phases of the Project as follows:

- Rehabilitation Phase. Sub-Contractors will be required to coordinate all rehabilitation activities with neighboring land uses. Contracts for the Project activities will also require construction operators to attend to the health and safety of their workers, maintain and cleanup campsites, and respect the rights of local landowners.

- Operational Phase. Once the Project is completed areas currently dependent on seepage from the existing dam will be affected. As noted above, the USAID General Contractor is currently preparing an Irrigation Study to assess this issue and to provide an amicable solution to this potential problem with the help of the people of Rauwza. This may include an agreement with the people of Rauwza to allow a permanent legal supply of irrigation waters to the downstream villages to ensure these villages do not suffer from the cessation of seepage from the dam.

Additional Recommendations. None. The findings and recommendations of the on-going Irrigation Study should be monitored to ensure that potential adverse impacts are avoided or otherwise mitigated.

3.4.2 Energy & Conservation

Existing Conditions. Within the Project Area as with the vast majority of Afghanistan, the population relies on traditional household fuels (wood, bushes, crop residues and animal waste) for its energy needs. There are reports of over-exploitation of forestry resources and non-sustainable production and use of fuel wood leading to deforestation and severe environmental degradation in many areas5. No coal mines or gas pipelines have been identified in the Project Area.

Potential Impacts and Planned Avoidance/Mitigation Actions. Given the limited nature of the rehabilitation works to the Zana Khan Dam no significant energy demands will be made during the course of the rehabilitation phase of the Project.

Additional Recommendations. No additional analysis is considered warranted.

3.4.3 Use of Natural/Depletable Resources

5 World Bank, Technical Annex for a Proposed Grant… to Afghanistan for an Emergency Infrastructure Reconstruction Project, May 2002, paragraph 8, page 2.

Existing Conditions. Rehabilitation of the Zana Khan Dam will require the use of certain natural resources. The most economically significant of the available resources in Afghanistan are identified as natural gas, petroleum, coal, copper, chromite, talc, barites, sulfur, lead, zinc, iron ore, salt, precious and semiprecious stones.[6] The country is also well supplied with rock, sand and other quarried construction materials as required for the proposed rehabilitation activities. No active mining is known to exist within the Project Area

Potential Impacts and Planned Avoidance/Mitigation Actions. Resource requirements for the rehabilitation works are minimal and will not induce significant impacts to natural/depletable resources. Contract conditions specify controls of quarry usage.

Additional Recommendations. None warranted.

3.4.4 Urban Quality/Design of the Built Environment

Existing Conditions. The Project is in a rural rangeland area. Zarak village is located as indicate in Item 3.4.1.

Potential Impacts and Planned Avoidance/Mitigation Actions. No impacts to urban quality or design of the built environment are anticipated due to project works.

Additional Recommendations. None warranted.

3.4.5 Historic and Cultural Resources

Existing Conditions. Historic and cultural resources include monuments, structures, works of art, the sites of outstanding universal value from historical, aesthetic, scientific ethnological and/or anthropological points of view, including unrecorded graveyards and burial sites. Afghanistan is rich in historic and cultural resources. The responsibility for preservation, maintenance and assessment of historical and cultural monuments in Afghanistan rests with the Archaeological Committee under the Ministry of Information and Culture (MOIC).

Generally speaking, the most significant aboveground cultural resources in Afghanistan are located within the urban areas. None of the villages within the Project Area are known to be susceptible to impacts as a result of the proposed project rehabilitation works.

EXHIBIT 3-10. ZANA KHAN DAM WALL

The Zana Khan Dam is over 80 years old (originally dating back to the era of Sultan Mahmood Ghaznawy) and could be considered part of the cultural heritage of Zana Khan (see **Exhibit 3-10**). However, rehabilitation works are minimal and will keep the present structure of the dam. Accordingly, Project works are unlikely to significantly affect any unique characteristics of the dam.

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Potential Impacts & Planned Avoidance/Mitigation Actions. To avoid potential adverse impacts to historic and cultural resources, the Project specifications will state that the Sub-Contractor shall:

- Consult with provincial-level representatives of the Archaeological Committee under the Ministry of Information and Culture, obtain any necessary clearances in regard to historic and cultural resources prior, and provide written documentation of these consultations to the Contractor prior to the initiation of the Work.

- Protect sites of known antiquities, historic and cultural resources by the placement of suitable fencing and barriers;

- Adhere to accepted international practice and all applicable historic and cultural preservation requirements of the Government of Afghanistan, including all appropriate local government entities.

- In the event of unanticipated discoveries of cultural or historic artifacts (movable or immovable) in the course of the work, the Sub-Contractor shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives of the Archaeological Committee and the Ministry of Information and Culture. If continuation of the work would endanger the finding, project work shall be suspended until a solution for preservation of the artifacts is agreed upon.

Additional Recommendations. None warranted.

3.5 ADDITIONAL ENVIRONMENTAL CONCERNS

3.5.1 Socio-Economic Considerations

Existing Conditions. The economy of the Zana Khan Dam Project Area is predominantly dependent on rangeland grazing and agriculture. **Exhibit 3-11** illustrates the general economic activity of Afghanistan. As illustrated the Project Area is classified as mixed dry farming and grazing (rangeland).

Within the Project Area, as with most of Afghanistan, economic considerations have been overshadowed by political and military upheavals during two decades of war. Gross domestic product fell substantially because of the loss of labor and capital and the disruption of trade and transport; severe drought added to the nation's difficulties in 1998-2001. The majority of the population continues to suffer from insufficient food, clothing, housing, and medical care, problems exacerbated by military operations and political uncertainties. Inflation remains a serious problem.

Following the US-led coalition war that led to the defeat of the Taliban in November 2001 and the formulation of the Afghan Interim Authority (AIA) resulting from the December 2001 Bonn Agreement, International efforts to rebuild Afghanistan were addressed at the Tokyo Donors Conference for Afghan Reconstruction in January 2002 resulting in the creation of a trust fund to be administered by the World Bank. Priority areas for reconstruction include the construction of education, health, and sanitation facilities, enhancement of administrative capacity, the development of the agricultural sector, and the rebuilding of road, energy, and telecommunication links.

As of 1990, approximately 80 percent of Afghanistan’s ten million person labor force was employed in agriculture, ten percent in the service sector and ten percent in industry.

Industries are generally small-scale production of textiles, soap, furniture, shoes, fertilizer, and cement; hand-woven carpets; natural gas, coal, and copper.[7] No economic data is known to be available for Ghazni Province in which the Project is located. However, field observations indicate that agriculture is the primary economic activity in the region. Anecdotal information suggests that most of the crops grown in the Project Area are sold in the local markets and in the urban area of Ghazni.

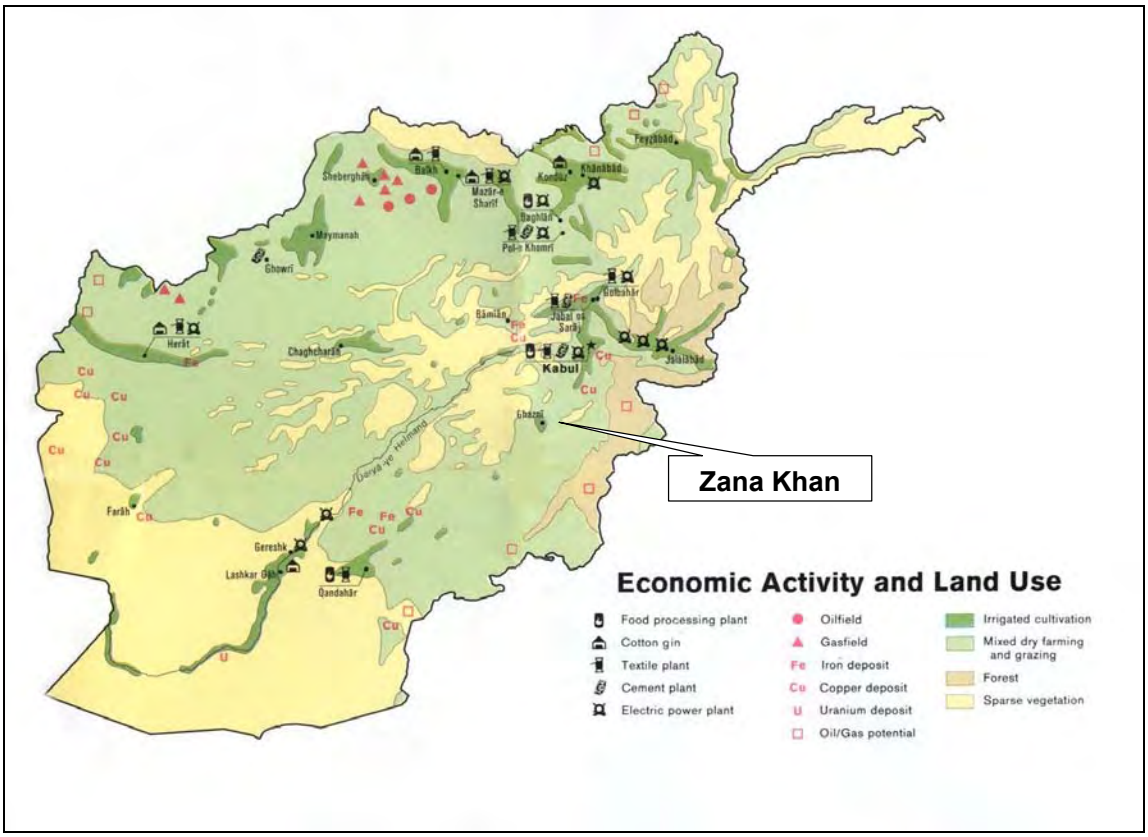

EXHIBIT 3-11. ECONOMIC ACTIVITY AND LAND USE

Given the nature of the Project, no resettlement and relocation actions are anticipated.

Potential Impacts and Planned Avoidance/Mitigation Actions. The Project is expected to have a beneficial impact on the economy of the village of Rauzwa (who own the sole rights to the waters of the Zana Khan Reservoir) by improving agricultural output. However, the project may have a negative effect on the agricultural output of several small villages downstream of the dam which currently rely on seepage for crop irrigation.

Additional Recommendations. Further studies into the effects of seepage reduction on irrigation systems downstream of the dam as indicated in item 3.2.4.

3.5.2 Public Health

Existing Conditions. Public health facilities and services in Afghanistan suffered due to civil unrest and severe economic problems. Zana Khan Dam is located in the district of Zana Khan where the population per health facility is approximately 10,000 – 20,000 (See **Exhibit 3-12**). No data in regard to the locations of health facilities in the Project Area are currently in

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hand, but consultations with local residents indicated that a the nearest health facility was in the town of Ghazni approximately 25 kilometers from the Dam site.

Within the country as a whole, access to adequate and safe water and sanitation facilities is limited. It is estimated that 23 percent of the population has access to safe water. Many provincial and secondary towns have no networked services. Water borne diseases are a major cause of the prevailing high infant and mortality rates. Approximately 85,000 children under the age of five die annually from diarrheal diseases. Few residential or public buildings in Afghan cities have sewerage facilities and those that do discharge their wastewater directly into rivers without treatment. The World Bank reports that in 1997, sanitation coverage was estimated to be 23 percent of the urban population (versus eight percent of the rural population).[8]

Although public health facilities and services in Afghanistan suffered due to civil unrest and severe economic problems, the roads provide the main access routes to such health care facilities as are available for the population within the potentially affected area.

Potential Impacts and Planned Avoidance/Mitigation Actions. Potential impacts of the Project can be identified as:

- Contamination of local water supplies during rehabilitation. Potential impacts to local water supplies include the possibility of temporary labor camps and the water supply and wastewater disposal associated with them during the rehabilitation period. Contract provisions to ensure that ancillary facilities are properly sited will be incorporated in all contract documents.

- Air pollution. As noted in Item 3.2.5, potential air quality impacts during the rehabilitation stage of the Project. Potential air quality impacts during rehabilitation include those related to fugitive dust generation in and around rehabilitation activities and related activities such as plants for crushing rocks, hot-mix and asphalt plants.

- Noise levels with health consequences. Potential noise issues are discussed in **Item 3.5.5** below.

- Disease transmission. Increases in sexually transmitted diseases (STDs) are often associated with rehabilitation projects. Contract documents will require Sub-Contractors to provide basic emergency heath facilities for workers; and encourage programs aimed at the prevention of sexually transmitted diseases as a part of all construction employee orientation programs.

Additional Recommendations. Although mitigation of such impacts is beyond the scope of the proposed Project, the establishment of STD awareness programs is recommended.

3.5.3 Safety

Existing Conditions. Safety issues related to civil unrest and crime are major concerns in the Project Area as they are in the rest of the country. In terms of traffic safety, traffic volumes are light. Some Non-motorized traffic (NMT) is encountered on the roads adjacent to the left and right canals, but is also relatively light.

Potential Impacts & Planned Avoidance/Mitigation Actions. No potentially significant impacts associated with traffic safety are anticipated.

8 World Bank, Technical Annex for a Proposed Grant… to Afghanistan for an Emergency Infrastructure Reconstruction Project, May 2002, paragraph 7, page 2.

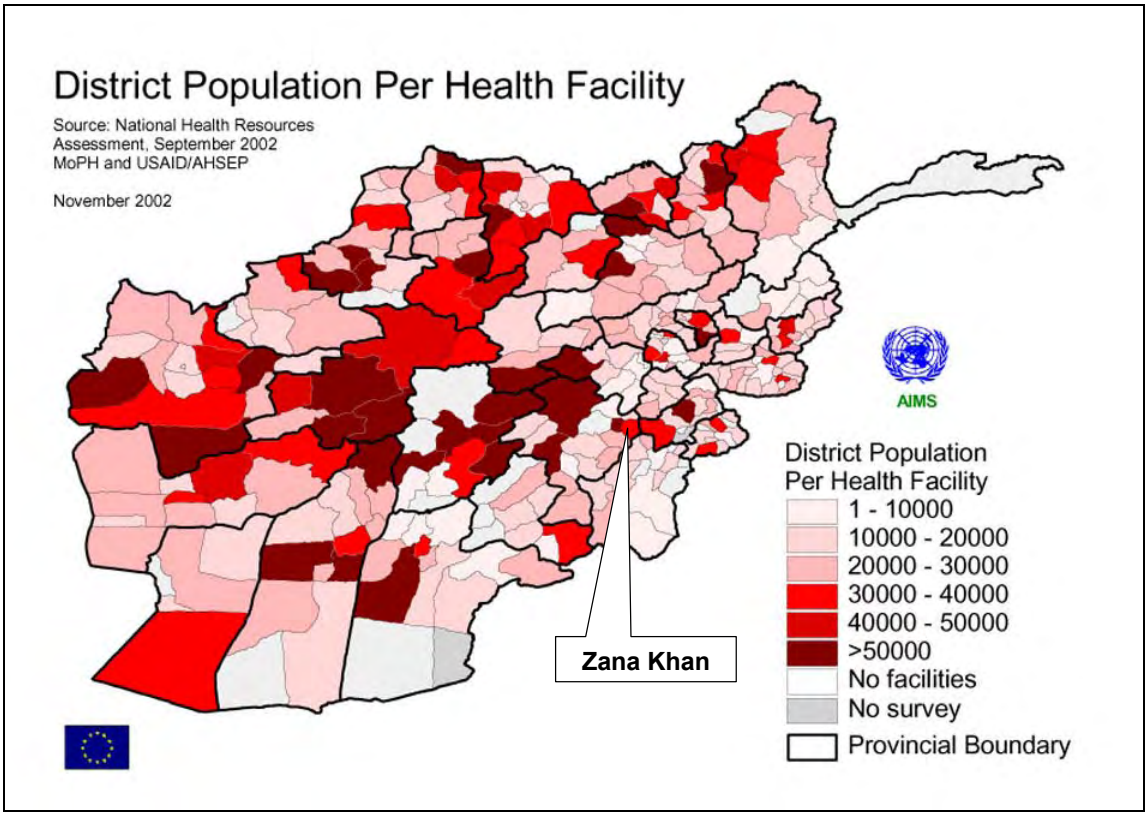


EXHIBIT 3-12. DISTRICT POPULATION PER HEALTH FACILITY

Additional Recommendations. None warranted.

3.5.4 Gender & Disabled Persons Issues

Existing Conditions. The terms of reference for REFS specifically note that "*all projects will take into consideration gender issues and accessibility for disabled persons*".[9]

It has been noted that the last twenty years of social upheaval have greatly affected the overall gender situation in Afghanistan, resulting in very restrictive policies vis-à-vis women's participation in public life, access to education, other services and employment opportunities. Women and girls were effectively excluded from any participation in public life during the Taliban regime. With the replacement of the Taliban regime, women have regained the right to education, employment opportunities and services, but the prevailing social norms are still very conservative and restrictive regarding women's participation in the national development effort. There are huge differences between Kabul and the much smaller secondary cities and the rural areas. There are also considerable regional differences with the more restrictive and conservative south and southeastern parts of the country, and the western and northern areas. There are also reported to be great differences between returning refugees and those who remained in the country.[10] No legislation in regard to discrimination against, or incentives for, the employment of the disabled is known to be in place in Afghanistan.

9 REFS Contract, Section C, Item B, page C-2.

10 World Bank, Technical Annex for a Proposed Grant… to Afghanistan for an Emergency Infrastructure Reconstruction Project, May 2002, paragraph 79, page 15.

Potential Impacts and Planned Avoidance/Mitigation Actions. Women and disabled persons are not specifically targeted as a part of the Project. Recruitment of local labor has been identified as an objective of the Project and in other circumstances (e.g., Bangladesh, India, China and elsewhere) similar projects have included specific provisions for gender equity employment opportunities. The types of rehabilitation activities are not expected to generate labor opportunities for women in the Afghanistan context, however, due to the prevailing social norms or the disabled due to the nature of the work.

Additional Recommendations. None warranted.

3.5.5 Noise

Existing Conditions. Ambient noise levels in the Project Area are very low. Field investigations did not reveal the presence of "sensitive receptors", i.e., recipients of sound for whom exposures to excessive sound levels are detrimental - hospitals, for example. However, machinery noise may have some small scale impacts on the local population living within the vicinity of the dam.

Potential Impacts and Planned Avoidance/Mitigation Actions. Mitigation of noise impacts in the rehabilitation and operational phases of the Project will include:

- Rehabilitation Stage. Contracts will contain provisions to mitigate potential noise and vibration impacts during rehabilitation is recommended through the use of:

  - *Source Controls*, i.e., requirements that all exhaust systems will be maintained in good working order; properly designed engine enclosures and intake silencers will be employed; and regular equipment maintenance will be undertaken.

  - *Site Controls,* i.e., requirements that stationary equipment will be placed as far from sensitive land uses as practical; selected to minimize objectionable noise impacts; and provided with shielding mechanisms where possible.

  - *Time and Activity Constraints*, i.e., operations will be scheduled to coincide with periods when people would least likely be affected; work hours and work days will be limited to less noise-sensitive times. Hours-of-work will be approved by the site engineer having due regard for possible noise disturbance to the local residents or other activities. Rehabilitation activities will be strictly prohibited between 10 PM and 6 AM in the residential areas. When operating close to sensitive areas such as residential, nursery, or medical facilities, the Sub-Contractor's hours of working shall be limited to 8 AM to 6 PM.

  - *Community Awareness*, i.e., public notification of project works will incorporate noise considerations; methods to handle complaints will be specified. Sensitive receptors will be avoided as possible (i.e., aggregate crushers, operators, etc.). Disposal sites and haul routes will be coordinated with local officials.

  - *Baseline and Routine Noise Monitoring as Part of Construction Supervision*. Pre-construction monitor of existing noise and vibration may be undertaken to provide a baseline for the measurement of impacts during the rehabilitation period if determined to be warranted by the USAID/GC. Routine monitoring may also be required in areas of high potential impact (e.g., pile-driving sites and areas of intensive noise-generating activities) if considered warranted by the USAID/GC.

- Operational Stage. No significant sources of noise are anticipated to result during the operational phase of the Project. Accordingly no mitigation of operational noise is

considered warranted.

Additional Recommendations. None warranted.

3.5.6 Other Infrastructure Systems

Existing Conditions. It is anticipated that piped water supply and wastewater collection systems exist only in the urban areas. Irrigation systems and other infrastructure may exist in the rural areas in the form of electrical power lines and pipelines. The formal infrastructure sector in Afghanistan is largely owned and operated through centralized ministries with some operational and production functions delegated to government enterprises. The reach of formal services, however, is very limited. In the urban water supply and sanitation sectors there is reported to be substantial private participation in service deliveries mainly through communities, NGOs and UN agencies. In rural areas NGOs and communities have been and are likely to remain the core providers of infrastructure services. Details of the known situation are as follows.

- Water Supply Systems. Piped water supply systems exist only in urban areas and are in need of urgent repair. Coverage is poor. Less than 20 percent of Kabul's population has access to piped water and many provincial and secondary towns have no networked services.[11] No piped water supply systems are known to be within the vicinity of the Project.

- Wastewater Collection Systems. Virtually no rural areas and few residential or public buildings in Afghan cities have networked wastewater collection sewerage facilities and those that do discharge their wastewater directly into rivers without treatment. The World Bank reports that in 1997, sanitation coverage was estimated to be 23 percent of the urban population (versus eight percent of the rural population).[12] No piped wastewater collection systems are known to be within the vicinity of the Project.

- Electrical Systems. No above ground electrical connections are evident within settlement areas. No underground systems are known to exist within the vicinity of the Project.

- Dam Crossing. Exhibits, 2-6, 3-6, 3-8 & 3-10 illustrates the dam walls use as a short cut from the left bank of the reservoir to the south bank. This short cut is used by pedestrians only and cannot facilitate the movement of vehicles. The crossing appeared to be infrequently used, however, given the relatively poor state of the stonework along the dam wall the walk across the wall can be slightly precarious to the newcomer, however, residents of Zana Khan did not appear concerned with the potential danger of crossing the dam wall.

Potential Impacts and Planned Avoidance/Mitigation Actions. Given the general lack of infrastructure in the Project Area no significant mitigation actions are required. However, due to the dam walls use as a walk way for pedestrians it is recommended that hand rails be placed along the wall to prevent accidents.

Additional Recommendations. None warranted.

3.6 OTHER IMPACT STATEMENTS REQUIRED BY 22 CFR 216

11 World Bank, Technical Annex for a Proposed Grant… to Afghanistan for an Emergency Infrastructure Reconstruction Project, May 2002, paragraph 7, page 2.

12 World Bank, Technical Annex for a Proposed Grant… to Afghanistan for an Emergency Infrastructure Reconstruction Project, May 2002, paragraph 7, page 2.

3.6.1 Adverse Impacts That Cannot Be Avoided

Less-than-significant adverse impacts may occur during the rehabilitation activities such as temporary impacts to air quality, noise levels due to rehabilitation. These impacts will be mitigated by the contract provisions as specified herein, including actions such as water spraying to control dust and the restriction of noise-generating activities to daylight hours and the avoidance of such activities in sensitive areas such as the vicinity of hospitals, etc.

3.6.2 Short-Term Use Versus Long-Term Productivity

The Proposed Action will enhance long-term productivity of economic activities in the Project Area by improving agricultural output in the Project Area.

3.6.3 Irreversible Commitments of Resources

Certain natural and human resources will be irreversibly devoted to the Project, including the necessary construction materials and labor. Commitment of these resources will be offset by the Project benefits.

4.0 ENVIRONMENTAL GUIDELINES

4.0 ENVIRONMENTAL GUIDELINES

For projects such as the Zana Khan Dam Project the REFS TOR states that *"the Contractor shall prepare **environmental guidelines** that will be used to minimize and mitigate potential environmental impacts. Included in the guidelines will be an **environmental mitigation checklist** to be completed as a part of final design for each project. Where the analysis indicates that negative environmental effects could occur, the project will be designed to avoid or mitigate those effects. The guidelines will also describe procedures for **monitoring rehabilitation activities** to assure that identified mitigation measures have been implemented as planned"* (Emphasis added). Accordingly, the following presents the examination's findings in regard to the environmental mitigation final design checklist (**Item 4.1**) and monitoring (**Item 4.2**). Additional recommendations for environmental actions beyond the scope of the Project, but within the scope of REFS, are presented in **Item 4.3**.

4.1 Environmental Mitigation Final Design Checklist

The preferred form of mitigation is avoidance of impacts through the adoption of enforceable measures and precautions rather than amelioration after the fact. This preferred form of mitigation has been incorporated in the recommended contract provisions attached hereto as **Appendix A.**

An environmental and final design checklist is provided by **Exhibit 4-1**.

4.2 Monitoring

Monitoring of projects such as the Zana Khan Dam Project generally includes observational monitoring to enforce contract provisions to avoid adverse impacts and may include instrumented monitoring of environmental parameters such as air quality, when warranted.

Monitoring of environmental impacts during the rehabilitation process will be the responsibility of the USAID General Contractor (USAID/GC) as a part of contract supervision procedures. A Supervising Engineer (SE) will be assigned to the Project. Compliance procedures will include routine site visits, including the ancillary facilities associated with that package (labor camps, asphalt plants, etc.).

Major issues to be addressed in the monitoring and compliance reports will include:

- **Air Quality Impacts.** The SE will be responsible for compliance with contract provisions that specify:
  - Controlled locations of sources of air pollution, use of quarries, etc.
  - Proper use of water sprays and other techniques to lessen dust impacts.
  - Prohibitions against open burning in populated areas.
  - Proper use of solvents and volatile materials.
  - Blasting (if any) to be carried out using small charges.

EXHIBIT 4-1
ENVIRONMENTAL MITIGATION FINAL DESIGN CHECKLIST

For Air Quality, Water, Soil, Noise and Social Impacts

AIR QUALITY

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Material Transport	Minimization of dust during transport of construction material	Rock, sand and other dust producing material will be sprayed prior to transport. Trucks must be covered with tarps. Only approved transport routes will be used.	Required by Project Contracts. Enforced by the Supervising Engineer (SE).
Material Storage	Minimization of dust during storage of construction material.	Stockpiles of materials shall be sited in sheltered areas away from sensitive areas and covered with tarps if required.	Required by Project Contracts. Enforced by SE.
Emissions from Construction Equipment & Solvents	Avoidance of excessive emissions due to poorly maintained equipment.	Contract stipulations require all construction equipment to meet acceptable standards and to be properly maintained and located at least 500 meters from the nearest sensitive receptor. Solvents and volatile materials must be used and stored properly to the satisfaction of the SE.	Required by Project Contracts. Enforced by SE.
On-Site Burning	Avoidance of smoke and gases which may constitute a nuisance.	On-site burning to be banned in populated areas	Required by Project Contracts. Enforced by SE.
Dust Generating Operations	Avoidance of dust generating operations during periods of high wind	In periods of high winds, dust generating options shall not be permitted within 200 meters of sensitive sites given the direction of the prevailing wind.	Required by Project Contracts. Enforced by SE.

WATER QUALITY

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Uncontrolled Runoff During Project Works	Avoidance of inadequately planned runoff due to development of staging areas, labor camps, etc.	Runoff from during project works will be strictly controlled as a part of construction supervision activities. Monitoring will be undertaken as a routine part of construction supervision.	Required by Project Contracts. Enforced by SE.
Disruption of Irrigation	Avoidance of interruptions to irrigation flows due to project works.	Irrigation systems have been taken into account in design and at no time will water supply be interrupted due to project works. Alternative water sources will be developed as warranted due to temporary interruptions.	Required by Project Contracts. Enforced by SE.
Effects of Construction Camps & Staging Areas	Avoidance of inappropriate wastewater disposal and runoff.	Provisions for the location and design standards for land use, drainage, health facilities, etc., are established by construction documents.	Required by Project Contracts. Enforced by SE.

SOILS

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Inadequate Slope Stabilization	Minimize soil loss during slope creation and due to erosion and slope failure in the longer-term.	Side slopes standards have been established to reduce erosion potential and/or, if necessary, stabilized, covered with rip-rap or other material to prevent soil erosion. Where appropriate embankment slopes will be stabilized by re-vegetation with grazing resistant plant species, placement of fiber mats, rip-rap, rock gabions, or other appropriate technologies.	Incorporated in design. Enforced by SE. Operational maintenance by MPW.
Soil Loss Due to Water-Related Erosion		Discharge zones from drainage structures will be furnished with rip-rap when warranted, particular in instances in which drainage structures are installed and/or road formation levels are raised and create bare slopes that require stabilization. Down drains/chutes will be lined with rip-rap/masonry or concrete to prevent erosion.	Incorporated in design. Enforced by SE. Operational maintenance by MPW.
Uncontrolled Runoff from Project Works & Labor Camps	Avoid soil due to poorly designed and/or maintained constructor and labor camps.	Runoff will be controlled by proper siting of camps and staging areas.	Required by Project Contracts. Enforced by SE.

NOISE

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Construction Machinery	Minimize high noise levels, vibrations at time of occurrence	Use equipment conforming to international standards and directives on noise and vibration. Maintain exhaust systems in good working order, properly design engine enclosures, use intake exhaust silencers and regularly maintain noise generating equipment.	Required by Project Contracts. Enforced by SE.
Pile Driving	Minimize high noise levels, vibrations and time of occurrence.	To be mitigated through use of : - Time limits for pile-driving activities. - Bored piles in sensitive areas. - Shrouds where warranted.	Required by Project Contracts. Enforced by SE.
Paving And Other Rehabilitation Activities.	Minimize high noise levels and times of occurrence.	Limited construction hours in sensitive areas. Use of properly maintained equipment. Use of noise barriers where warranted. Public notification of construction activities and timing of activities generating significant noise and vibration levels.	Required by Project Contracts. Enforced by SE.

SOCIAL

Potential Impact Source	Mitigation Objective	Mitigation Checklist Do designs and bid documents include the following provisions?	Implementation Mechanism & Responsibility
Disruption of Economic Activities	Minimize loss of income due to disruptions.	Unavoidable disruptions will be compensated per the recommended Guidelines and Irrigation Study for the Rauzwa area.	GOA and SE.
Temporary Impacts Due to Rehabilitation Works	Minimize temporary impacts to residents and surrounding environment.	Coordinate all construction activities with neighboring land uses and respect rights of local landowners. Maintain and clean up construction camps.	Construction requirements enforced by SE.
Health and Safety Impacts to Workers	Attend to the health and safety of Workers	Provide local, basic emergency health facilities for workers and incorporate programs aimed at the prevention of STDs.	Construction requirements enforced by SE.
In-migration of Labor	Avoidance of social tensions. Due to competition for resources.	Mitigated by control of labor camps (if any) employee orientation and public information programs.	Construction requirements enforced by SE.

HISTORIC AND CULTURAL RESOURCES

Damage to Cultural and Historic Sites during Project Works	Protect Sites of historic and cultural importance	Placement of suitable fencing and barriers near sites of known antiquities, and historic and cultural resources. Adhere to accepted international practice and all applicable historic and cultural preservation requirements of the GOA In the event of unanticipated discoveries of historical or cultural artifacts the Contractor will notify the MIC.	GOA and SE

- Controls of hazardous materials.

- Transport of dust-generating items using tarps and other devices to minimize impacts.

- Spraying of road surfaces, excavation and construction sites to keep them moist for dust control as determined advisable by the SE.

- **Water Quality Impacts.** Potential water quality impacts during the rehabilitation phase will also be mitigated through the controlled location of asphalt plants and similar sources of runoff, erosion controls, proper siting and provision of facilities at construction camps as tabulated by **Exhibit 4.1** with compliance assured through the oversight of the SE.

- **Soils Impacts.** Potential soil impacts will be mitigated through the control of waste disposal practices and runoff as tabulated by **Exhibit 4.1** as a routine part of construction supervision and enforced through the monitoring of the SE.

  - Embankment & Erosion Prevention Requirements

  - Mining/Quarry Activities – I.e., the requirement that only licensed quarrying operations are to be used for material sources, if available, and the contingency

provisions in the contracts if they are not. Selections of quarries used for the rehabilitation will require the approval of the SE.

- **Social Impacts.** Potential issues related to transport of construction materials, labor camps and other social impacts will be mitigated as a routine part of construction supervision. Compliance with the contract stipulation in regard to the use of local labor to the maximum extent feasibility will also be monitored by the SE. Implementation of actions to mitigate potential impacts to the Rauzwa area due to the loss of seepage water will also be monitored by the SE.

- **Historical and Cultural Resources.** Contract provisions for the protection of cultural and historical sources during the rehabilitation phase through the use of site controls and reporting unanticipated finds as tabulated by **Exhibit 4.1** with compliance monitored by the SE.

- **Public Health**. Compliance with contract provisions to control potential contamination of local water supplies during rehabilitation; to control air pollution and noise levels; to provide basic emergency heath facilities for workers; and encourage programs aimed at the prevention of sexually transmitted diseases as a part of all construction employee orientation programs; and other factors having a potential impact will be assured through the oversight of the SE. Although it is beyond the scope of the proposed Project, the establishment of STD awareness programs is recommended

- **Impacts to Other Infrastructure Networks**. Responsibility to ensure compliance with contract provisions to coordinate with all relevant agencies and organizations to avoid disruption of other infrastructure services (water supply, irrigation systems, electricity, etc.) rests SE.

- **Noise and Vibration Impacts.** Contract provisions for the control of noise and vibration impacts during the rehabilitation phase through the use of site controls, site controls, time and activity constraints and public awareness efforts as tabulated by **Exhibit 4.1** with compliance monitored by the SE.

4.3 Recommended Actions Beyond the Scope of the Project

Recommendations for actions beyond the scope of the Project, but generally within the scope of the REFS Program, are as follows:

- **Integrate REFS Institutional Strengthening Initiatives.** Institutional strengthening actions will be necessary as a part of the Project to ensure that the dam and irrigation system is adequately maintained in the future, to ensure that future biding and tendering procedures are in place and to ensure that environmental issues incorporated in these activities. REFS Component 2 offers an opportunity to provide the necessary institutional initiatives.

- **Coordinate with Other Financing Organizations**. Rehabilitation of portions of the Afghanistan's irrigation systems may be supported by organizations other than USAID, including other bilateral organization and the multi-lateral development banks. The establishment of reasonably consistent technical/engineering standards for the rehabilitation activities is highly recommended. A reasonable consistency in procedural standards and requirements is also highly recommended. Coordination of the technical reporting and procedures expected by the ministries by USAID, the World Bank, the Asian Development Bank and others is highly recommended so that the burden on local organizations to supply essentially the same information in different formats is

minimized.

- **Encourage and Provide Leadership for a Coordinated Water Resources Program**. Piecemeal and uncoordinated dam improvements, wells, irrigation and water supply programs without the benefit a more complete understanding of the underlying aquifers and subsurface conditions could lead to major environmental issues. Although the Sardeh Dam and Irrigation Project involves only rehabilitation of an existing system and is unlikely to have a major impact on existing water resource conditions, the development of a coordinated water resources program in which future project exploiting ground water resources, or potentially impacting groundwater resources, is highly recommended.

5.0 RECOMMENDED THRESHOLD DECISION

5.0 RECOMMENDED THRESHOLD DECISION

Project works are not anticipated to induce any significant impacts on the environmental or social characteristics of the Project Area. However, minor impacts will result from some rehabilitation activities as noted in **Section 3.0**. Notwithstanding the above, all of the identified impacts can be appropriately managed or mitigated by the measures outlined in **Sections 3 & 4** and provided as Recommended Contract Provisions as **Appendix A**.

Accordingly, a Threshold Decision documenting a **Negative Determination With Conditions** (i.e., adoption of the mitigation and contingency provisions as stipulated herein) is recommended. These conditions are identified as:

- Adoption of the Contract Provisions as provided by **Appendix A**;
- Adoption of the Guidelines for the compensation of project-affected persons (PAPs) as provided by **Appendix B** for use in the event that unexpected impacts are encountered;
- Identification of specific institutional strengthening activities to ensure that the rehabilitated dam and irrigation system is adequately maintained; and
- Encourage and provide leadership for the development of a coordinated water resources program as the context for additional water-related projects in the REFS Program.

APPENDIX A

APPENDIX A
CONDITIONS OF PARTICULAR APPLICATION
ENVIRONMENTAL PROVISIONS

The following has been extracted from the Conditions of Particular Application (COPA) prepared for use in the Zana Khan Dam Rehabilitation Project.

4.0 ENVIRONMENTAL

4.1 General Provisions and Precautions

The Sub-Contractor shall take all necessary measures and precautions and otherwise ensure that the execution of the Works and all associated operations on the Work Sites or off-site are carried out in conformity with statutory and regulatory environmental requirements of Afghanistan including those established by local governments. The Sub-Contractor shall take all measures and precautions to avoid any nuisance or disturbance arising from the execution of the Work. This shall, wherever possible, be achieved by suppression of the nuisance at source rather than abatement of the nuisance once generated. In the event of any spoil or debris or silt from the Work Sites being deposited on any adjacent land, the Sub-Contractor shall immediately remove all such spoil debris or silt and restore the affected area to its original state to the satisfaction of the responsible authorities.

4.2 Water Quality

The following conditions shall apply to avoid adverse impacts to water quality:

- The Sub-Contractor shall prevent any interference with the supply to, or abstraction from, water resources and the pollution of water resources (including underground percolating water) as a result of the execution of the Works.

- Areas where water is regularly or repetitively used for dust suppression purposes (if any) shall be laid to fall to specially-constructed settlement tanks to permit sedimentation of particulate matter. After settlement, the water may be re-used for dust suppression and rinsing. All water and other liquid waste products arising on the Site shall be collected and disposed of at a location on or off the Site and in a manner that shall not cause either nuisance or pollution.

- The Sub-Contractor shall not discharge or deposit any matter arising from the execution of the Work into any waters except with the permission of the Contractor and regulatory authorities concerned.

- The Sub-Contractor shall at all times ensure that all existing stream courses and drains within and adjacent to the Site are kept safe and free from any debris and any materials arising from the Works.

- The Sub-Contractor shall protect all watercourses, waterways, ditches, canals, drains, lakes and the like from pollution, silting, flooding or erosion as a result of the execution of the Works.

4.3 Air Quality

The following conditions shall apply to avoid adverse impacts to air quality:

- Open burning will be prohibited.
- Solvents and volatile materials will be used and stored in manners satisfactory to the Contractor.
- Blasting (if any) will be carried out using small charges, and dust-generating items will be conveyed under cover.
- In periods of high wind, dust-generating operations shall not be permitted within 200 meters of residential areas having regard to the prevailing direction of the wind.
- Asphalt and hot-mix plants sites shall not be established prior to the approval of the Contractor and shall be located at least 500 meters away from the nearest sensitive receptor (e.g., schools and hospitals). Operators will be required to install emission controls.
- Water sprays shall be used during the delivery and handling of materials when dust is likely to be created and to dampen stored materials during dry and windy weather.
- Stockpiles of materials shall be sited in sheltered areas or within hoarding, away from sensitive areas. Stockpiles of friable material shall be covered with clean tarpaulins, with application of sprayed water during dry and windy weather. Stockpiles of material or debris shall be dampened prior to their movement whenever warranted.
- Vehicle with an open load-carrying area used for transporting potentially dust- producing material shall have properly fitting side and tailboards. Materials having the potential to produce dust shall not be loaded to a level higher than the side and tail boards, and shall be covered with a clean tarpaulin in good condition. The tarpaulin shall be properly secured and extend over the edges of the side and tailboards.
- In periods of adverse weather adverse impacts to adjacent residents or site employees during construction will be mitigated by either discontinuing until favorable conditions are restored, or, if warranted, sites may be watered to prevent dust generation, particularly at crushing plants.
- Machinery and equipment will be fitted with pollution control devices, which will be checked at regular intervals to ensure that they are in working order. Best available pollution control technologies will be required.
- Pre-construction monitor of existing ambient air quality may be undertaken to provide a baseline for the measurement of air quality impacts during the construction period if considered warranted by the Contractor.
- Periodic air quality monitoring may also be required in areas of high potential impact (asphalt plants, construction camps, etc) during the life of the Project if considered warranted by the Contractor.

4.4 Protection of Soils

Cut and Fill Activities. In undertaking cut and fill activities associated with the Works the Sub-

Contractor shall:

- Select less erodable material, placement of gabions and riprap and good compaction, particularly around bridges and culverts.
- Complete final forming and re-vegetation will be completed as soon as possible following fill placement to facilitate regeneration of a stabilizing ground cover.
- Trench where necessary to ensure successful establishment of vegetation.
- Seed with a fast growing crop and potential native seed mix immediately after fill placement to prevent scour and to encourage stabilization.
- Stabilize embankment slopes and road cuts by re-vegetation with grazing resistant plant species, placement of fiber mats, riprap, rock gabions, or other appropriate technologies.
- Complete discharge zones from drainage structures with riprap to reduce erosion when required.
- Line down drains/chutes with rip-rap/masonry or concrete to prevent erosion.
- Adjust side slopes adjusted in the range from based on soil and other conditions and within a range as determined in consultation with the Contractor to reduce erosion potential or, if necessary, cover with riprap or other material to prevent soil erosion.
- Use stepped embankments for embankments greater than six meters.

Borrow Pits. The following conditions shall apply to borrow pits:

- Borrow areas will be located outside the ROWs.
- Pit restoration will follow the completion of works in full compliance all applicable standards and specifications.
- The excavation and restoration of the borrow areas and their surroundings, in an environmentally sound manner to the satisfaction of the Contractor is required before final acceptance and payment under the terms of contracts.
- Borrow pit areas will be graded to ensure drainage and visual uniformity, or to create permanent tanks/dams.
- Topsoil from borrow pit areas will be saved and reused in re-vegetating the pits to the satisfaction of the Contractor.
- Additional borrow pits will not be opened without the restoration of those areas no longer in use.

Quarries. To ensure adequate mitigation of potential adverse impacts, only licensed quarrying operations are to be used for material sources. If licensed quarries are not available the Sub-Contractors may be made responsible for setting up their dedicated crusher plants at approved quarry sites

Erosion. To avoid potential adverse impacts due to erosion, the Sub-Contractor shall:

- Line spillage ways with riprap to prevent undercutting.

- Provide Mitigation plantings and fencing where necessary to stabilize the soil and reduce erosion.

- Upgrade and adequately size, line and contour storm drainage to minimize erosion potential.

- As noted in elsewhere in these Specifications, ditches shall be designed for the toe of slopes in cut sections with gutters or drainage chutes being employed to carry water down slopes to prevent erosion. Interceptor ditches shall be designed and constructed near the top of the back of slopes or on benches in the cut slopes as well as when there is a slope on adjacent ground toward the fill. When the roadway has a steep longitudinal slope, a drain is to be designed and constructed at the down-slope end of the cut to intercept longitudinal flow and carry it safely away from the fill slopes.

4.5 Avoidance of Social Impacts

To avoid adverse social impacts, the Sub-Contractor shall:

- Not proceed without verification by the Government of Afghanistan that lands required for the improvements are free of any squatters, encroachers or other claims or entitlements as specified by the Guidelines and recommendations of the Environmental Assessment of the Kandahar-Herat Road Rehabilitation Project as approved by USAID.

- Coordinate all construction activities with neighboring land uses and respect the rights of local landowners. If located outside the ROW, written agreements with local landowners for temporary use of the property will be required and sites must be restored to a level acceptable to the owner within a predetermined time period.

- Maintain and cleanup campsites.

- Attend to the health and safety of their workers by providing basic emergency heath facilities for workers and incorporate programs aimed at the prevention of sexually transmitted diseases as a part of all construction employee orientation programs.

- Obtain approval of all diversions and accommodations of traffic. A stipulated by Section ___ which states that “the Sub-Contractor shall provide the Contractor with a written traffic control plan which is to include when and where flagmen shall be employed and when and where traffic cones or other devices such as barricades and/or lights will be used. Where … traffic diversions area planned for …additional areas (will) be de-mined and the diversions clearly defined for travel.”

- Construct and maintain by-passes around bridges to be reconstructed until such time as the bridge is open for traffic. By-passes will be removed and the affected areas re-graded so as to blend in with the existing contours when the bridge is opened.

4.6 Noise

To avoid adverse impacts due to noise, the Sub-Contractor shall:

- Consider noise as an environmental constraint in his planning and execution of the Works.

- Use equipment conforming to international standards and directives on noise and vibration emissions.

- Take all necessary measures to ensure that the operation of all mechanical equipment and construction processes on and off the Site shall not cause any unnecessary or excessive noise, taking into account applicable environmental requirements.

- Maintain exhaust systems in good working order; properly design engine enclosures, use intake silencers where appropriate and regularly regular maintain noise-generating equipment.

- Use all necessary measures and shall maintain all plant and silencing equipment in good condition so as to minimize the noise emission during construction works.

- Schedule operations to coincide with periods when people would least likely be affected and limit work hours and work days to less noise-sensitive times. Hours-of-work will be approved by the Contractor having due regard for possible noise disturbance to the local residents or other activities. Construction activities will be strictly prohibited between 10 PM and 6 AM in the residential areas. When operating close to sensitive areas such as residential, nursery, or medical facilities, the Sub-Contractor's hours of working shall be limited to 8 AM to 6 PM.

- Incorporate noise considerations in public notification of construction operations and specify methods to handle complaints. Disposal sites and haul routes will be coordinated with local officials to avoid adverse traffic noise.

- Undertake pre-construction monitor of existing noise and vibration if determined warranted and requested by the Contractor to provide a baseline for the measurement of impacts during the construction period. Routine monitoring may also be required in areas of high potential impact (e.g., pile-driving sites and areas of intensive noise-generating activities) if considered warranted by the Contractor.

4.7 Fuel and Chemical Storage

The following conditions to avoid adverse impacts due to improper fuel and chemical storage:

- All fuel and chemical storage (if any) shall be sited on an impervious base within a bund and secured by fencing. The storage area shall be located away from any watercourse or wetlands. The base and bund walls shall be impermeable and of sufficient capacity to contain 110 percent of the volume of tanks.

- Filling and refueling shall be strictly controlled and subject to formal procedures.

- All valves and trigger guns shall be resistant to unauthorized interference and vandalism and be turned off and securely locked when not in use.

- The contents of any tank or drum shall be clearly marked. Measures shall be taken to ensure that no contaminated discharges enter any drain or watercourses.

4.8 Protection of Historic and Cultural Resources

To avoid potential adverse impacts to historic and cultural resources, the Sub-Contractor shall:

- Protect sites of known antiquities, historic and cultural resources by the placement of suitable fencing and barriers;

- Adhere to accepted international practice and all applicable historic and cultural preservation requirements of the Government of Afghanistan, including all appropriate local government entities.

- In the event of unanticipated discoveries of cultural or historic artifacts (movable or immovable) in the course of the work, the Sub-Contractor shall take all necessary measures to protect the findings and shall notify the Contractor and provincial-level representatives of the Archaeological Committee under the Ministry of Information and Culture. If continuation of the work would endanger the finding, project work shall be suspended until a solution for preservation of the artifacts is agreed upon.

4.9 Protection of Utilities

To avoid potential adverse impacts to utilities, the Sub-Contractor shall:

- Ascertain and take into account in his method of working the presence of utility services on and in the vicinity of the Site.

- Take into account in his program the periods required to locate, access, protect, support and divert such services, including any periods of notice required to effect such work in consultation with authorities operating such services.

- Assume all responsibility to locate or to confirm the details and location of all utility services on or in the vicinity of the Site.

- Exercise the greatest care at all times to avoid damage to or interference with services.

- Assume responsibility for any damage and/or interference caused by him or his agents, directly or indirectly, arising from actions taken or a failure to take action, and for full restoration of the damage.

- Wherever existing ground surfaces are to be disturbed for construction of the Works, carry out full and adequate preliminary investigations to locate all services in the area by means of hand-dug trial holes and trenches in combination with electronic and electro-mechanical devices, where appropriate,. Each service thus exposed shall be identified. Every such service at risk shall be fully exposed and adequately protected and supported in situ or diverted to the satisfaction of the appropriate authority prior to the commencement of such construction.

- When working in the vicinity of overhead power cables, ascertain and satisfy himself about the safe clearances to be maintained from the power cables in consultation with the authority operating the power line. Where existing overhead power lines, communications cables or other major utilities require relocation, the Sub-Contractor will use the services of specialist enterprises with the necessary skills and technology to carry out the work.

APPENDIX B

APPENDIX B
GUIDELINES FOR LAND AND ASSET ACQUISITION, ENTITLEMENTS AND COMPENSATION

The following presents the Guidelines for Land and Asset Acquisition, Entitlements and Compensation drafted for use in the World Bank Afghanistan Emergency Infrastructure Project. Adaptation of the guidelines is recommended for incorporation in the Zana Khan Dam Rehabilitation Project and other projects included in the USAID Afghanistan Rehabilitation of Economic Facilities and Services (REFS) Program.

Guidelines for Land and Asset Acquisition, Entitlements and Compensation

I. Objectives

Land acquisition will be kept to a minimum and no person will be involuntarily displaced under subprojects financed by the proposed emergency reconstruction operations. Subproject proposals that would require demolishing houses or acquiring productive land should be carefully reviewed to minimize or avoid their impacts through alternative alignments. Proposals that require more than minor expansion along rights of way should be reviewed carefully. No land or asset acquisition may take place outside of these guidelines. A format for Land Acquisition Assessment is attached as Attachment 2(i).

These guidelines provide principles and instructions to compensate affected persons to ensure that all such persons negatively affected, regardless of their land tenure status, will be assisted to improve, or at least to restore, their living standards, income earning or production capacity to pre-project levels.

Categorization

Based on the number of persons that may be affected by the project (Project Affected People, PAPs) and the magnitude of impacts, projects may be categorized as S-1, S-2, or S-3 projects:

a. S-1 projects are those that will involve the resettlement of more than 200 PAPs and where a full Resettlement Action Plan (RAP) must be produced. Such interventions will be ineligible for support under the proposed emergency reconstruction operations.
b. S-2 projects are those which will involve the resettlement of less than 200 persons. In such cases, the following documentation is required: (1) a land acquisition assessment, (2) Minutes or record of consultations which assess the compensation claimed and agreement reached, and (3) a record of the receipt of the compensation, or voluntary donation, by those affected (see below).
c. S-3 projects are not expected to have any land acquisition or any other significant adverse social impacts; on the contrary, significant positive social impact and improved livelihoods are expected from such interventions.

II. Eligibility

PAPs are identified as persons whose livelihood is directly or indirectly affected by the project. PAPs deemed eligible for compensation are:

(1) those who have formal legal rights to land, water resources or structures/buildings, including recognized customary and traditional rights;

(2) those who do not have such formal legal rights but have a claim to usufruct right rooted in customary law;

(3) those whose claim to land and water resources or building/structures do not fall within(1) and (2) above, are eligible to assistance to restore their livelihood.

Acquisition of Productive Assets and Compensation

PAPs are eligible for replacement costs for lost assets as described below:

a. *Voluntary contributions*. In accordance with traditional practices, individuals may elect to voluntarily contribute land or assets and/or relocate temporarily or permanently from their land without compensation.
b. *Contributions against compensation*. A contributor/asset loser considered "affected" will be eligible for compensation from the local community or alternatively from the Government. A PAP shall lodge his/her claim for compensation to the local community representative/shura head and it shall be verified by the implementing agency. The claim shall be lodged within 2 weeks of completion of the consultations with the concerned community, and before project implementation begins.

Voluntary contribution, or contribution against compensation, should be documented. The documentation should specify that the land is free of any squatters, encroachers or other claims. A format is attached in Attachment 2(i), which includes a Schedule to be followed to assess any compensation claimed and the agreement reached.

III. Compensation Principles

The project implementing agencies shall ensure that any of the following means of compensation are provided in a timely manner to affected persons:

(1) Project affected persons losing access to a portion of their land or other productive assets with the remaining assets being economically viable are entitled to compensation at replacement cost for that portion of land or assets lost to them. Compensation for the lost assets will be according to following principles:

a. replacement land with an equally productive plot, cash or other equivalent productive assets;
b. materials and assistance to fully replace solid structures that will be demolished;
c. replacement of damaged or lost crops and trees, at market value;
d. other acceptable in-kind compensation;
e. in case of cash compensation, the delivery of compensation should be made in public, i.e. at the Community Meeting.

(2) Project affected persons losing access to a portion of their land or other economic assets rendering the remainder economically non-viable, will have the option of

compensation for the entire asset by provision of alternative land, cash or equivalent productive asset, according to the principles in (1) a-d above.

Consultation Process

The implementing agencies will ensure that all occupants of land and owners of assets located in a proposed subproject area are consulted. There will be gender separate community meetings for each affected mantaqa/gozar (urban infrastructure) or village (other projects) to inform the local population about their rights to compensation and options available in accordance with these guidelines. The minutes of the community meetings shall reflect the discussions held, agreements reached, and include details of the agreement based on the format provided in Attachment 2(ii).

The implementing agency shall provide a copy of the minutes to affected persons and confirm in discussions with each of them their requests and preferences for compensation, agreements reached, and any eventual complaints. Copies will be recorded in the posted project documentation and be available during supervision.

Subproject Approval

In the event that a subproject involves acquisition against compensation, the implementing agency shall:

a) Not approve the subproject unless a satisfactory compensation has been agreed between the affected person and the local community;
b) Not allow works to start until the compensation has been delivered in a satisfactory manner to the affected persons;
c) If more than 200 persons are affected and require compensation, the subproject shall be deemed ineligible for support under the emergency reconstruction operations.

Complaints and Grievances

All complaints should first be negotiated to reach an agreement at the local community/village level. If this fails, complaints and grievances about these guidelines, implementation of the agreements recorded in the community meeting minutes or any alleged irregularity in carrying out the project can also be addressed by the affected persons or their representative at the municipal or district level. If this also fails, the complaint may also be submitted to the relevant implementing agency for a decision.

Verification

The community meeting minutes, including agreements of compensation and evidence of compensation having been made shall be provided to the municipality/district, to the supervising engineers, who will maintain a record hereof, and to auditors and socio-econimic monitors when they undertake reviews and project post-assessment. This process shall be specified in all relevant project documents, including details of the relevant authority for complaints at municipal/district or implementing agency level.

Attachment 2(i)

Land Acquisition Assessment Data Sheet

(To be used to record information on all land to be required)

1. Quantities of land/structures/other assets required:

2. Date to be acquired:

3. Locations:

4. Owners:

5. Current Uses:

6. Users:

   - Number of Customary claimants:
   - Number of squatters:
   - Number of encroacher:
   - Number of owners:
   - Number of tenants:
   - Others (specify): Number:

7. How land/structures/other assets will be acquired (identify one):

   - Donation
   - Purchase

8. Transfer of title:

   - Ensure that these lands/structures/other assets free of claims or encumbrances
   - Written proof must be obtained (notarized or witnessed statements) of the voluntary donation, or acceptance of the prices paid, from those affected together with proof of title being vested in the community, or guarantee of public access, by the title holder.

9. Describe grievance mechanisms available:

Attachement 2(ii)

Format to Document Contribution of Assets

The following agreement has been made on……..day of……between…….resident of ……..(the owner) and …….(the recipient).

1. That the owner holds the transferable right of ……..jerib of land/structure/asset
in……

2. That the owner testifies that the land/structure is free of squatters or encroachers and not subject to other claims.

3. That the owner hereby grants to the recipient this asset for the construction and development of …….for the benefit of villagers and the public at large.

(Either, in case of donation :)

4. That the Owner will not claim any compensation against the grant of this asset

(Or, in case of compensation :)

5. That he Owner will receive compensation against the grant of this asset as per the attached Schedule.

6. That the Recipient agrees to accept this grant of asset for the purposes mentioned.

7. That the Recipient shall construct and develop the ……... and take all possible precautions to avoid damage to adjacent land/structure/other assets.

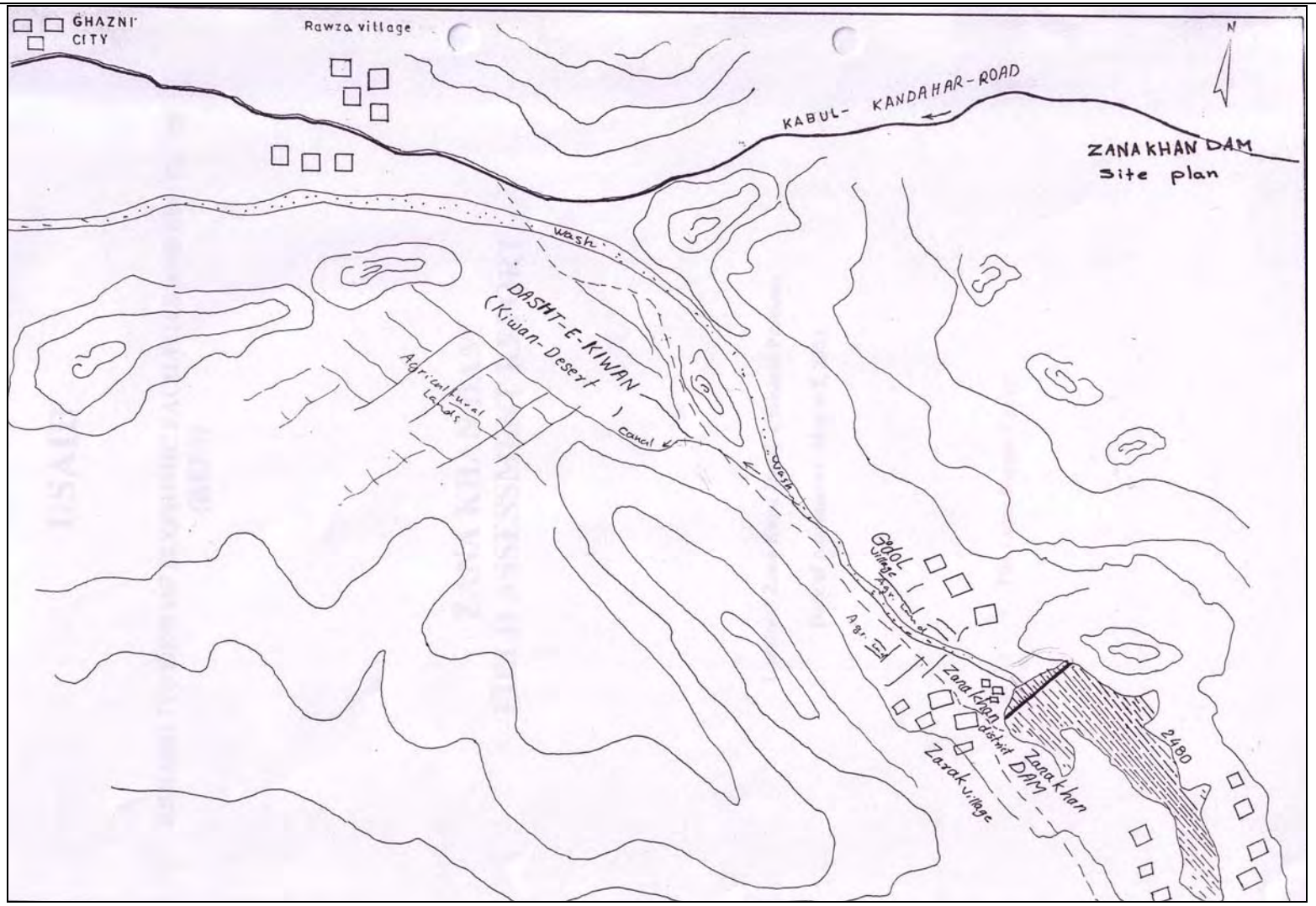
8. That both the parties agree that the ……..... so constructed/developed shall be public premises.

9. That the provisions of this agreement will come into force from the date of signing of this deed.

_____ _____
Signature of the Owner: Signature of the Recipient:

Witnesses:
1._____
2._____
(Signature, name and address)

APPENDIX C



APPENDIX B – PROJECT AREA SKETCH MAP

APPENDIX D

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