

# Initial Environmental Examination

---

Project number: 48042-001  
July 2016  
DRAFT

## AFG: Panj-Amu River Basin Sector Project

Prepared by the Ministry of Finance, Ministry of Energy and Water, and Ministry of Agriculture, Irrigation and Livestock for the Asian Development Bank.

This initial environmental examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

## CURRENCY EQUIVALENTS

(As of May 22, 2016)

Currency unit	–	Afghani (AFN)
Afs1.00	=	\$0.01453
\$1.00	=	Afs68.61

## ABBREVIATIONS

ADB	–	Asian Development Bank
AFG	–	Afghanistan
AFN, Afs	–	Afghani (currency unit)
CDC	–	Community Development Council
CEMP	–	Contractor environmental management plan
CWRD	–	Central and West Asia Department
DAIL	–	Department of Agriculture, Irrigation, and Livestock
DRRD	–	Department of Rural Rehabilitation and Development
DWR	–	Department of Water Resources
EA	–	(i) Executing agency (ii) environmental assessment
EARF	–	Environmental assessment and review framework
EIA	–	Environmental impact assessment
EMP	–	Environmental management plan
EMR	–	Environmental monitoring report
EOP	–	Environment-on-project
ERP	–	Environmentally responsible procurement
EU	–	European Union
FSDC	–	Feasibility study / design consulting services (with MEW)
GoIRA	–	Government of the Republic of Afghanistan
GRM	–	Grievance redress mechanism
IA	–	(i) Implementing agency (ii) irrigation association
ICS	–	Implementation consulting services
IDP	–	Internally displaced person
IEE	–	Initial environmental examination

## ABBREVIATIONS

IWRM	– Integrated water resources management
MAIL	– Ministry of Agriculture, Irrigation, and Livestock
MEW	– Ministry of Energy and Water
MOF	– Ministry of Finance
MRRD	– Ministry of Rural Rehabilitation and Development
NRM	– Natural Resources Management
OECD	– Organisation for Economic Cooperation and Development
OFWM	– On-farm water management
PIO	– Project implementation office
PMO	– Project management office
PPTA	– Project preparation technical assistance
RBA	– River basin agency
RBC	– River basin council
RSP	– Representative subproject
SBA	– Sub-basin agency
SEMP	– Site environmental management plan
WRDIP	– Water Resources Development Improvement Project
WUA	– Water user association

## WEIGHTS AND MEASURES

°C	– degrees Celsius
ha	– hectare, 10,000 m <sup>2</sup>
jerib	– 0.2 ha
km	– kilometer
m	– Meter

## GLOSSARY

Command area	– Nominal or design area to be irrigated
Community Development Council (CDC)	– Established under the National Solidarity Program managed by Ministry of Rural Rehabilitation and Development (MRRD), a village-level group for improving and strengthening local governance through cooperation and volunteer participation of community members to promote, develop and maintain

## GLOSSARY

welfare of the community and strengthen sense of unity, cooperation and solidarity. Such groups plan for and encourage ecologically sustainable economic and social development

Cross-regulator	<ul style="list-style-type: none"> <li>– A structure built across a canal to regulate the water level in the canal upstream of itself and the discharge passing downstream of it for one or more of the following purposes: (i) To feed offtaking canals located upstream of the cross regulator. (ii) To help water escape from canals in conjunction with escapes. (iii) To control water surface slopes in conjunction with falls for bringing the canal to regime slope and section. (iv) To control discharge at an outfall of a canal into another canal or lake. Cross-regulators constructed at the head of a canal are called head regulators. Those constructed at the head of a main canal are called canal head regulators (also referred to here as intake structures) and those at the head of a distributary canal (or off-taking canal) such as a secondary or tertiary canal are called distributary cross-regulators.</li> </ul>
Ecosystem	<ul style="list-style-type: none"> <li>– All living organisms and plants in a region and their relationships with each other and their environment (per Afghanistan's Water Law and Environment Law)</li> </ul>
Impacts	<ul style="list-style-type: none"> <li>– Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended (OECD 2002)</li> </ul>
Integrated water resources management (IWRM)	<ul style="list-style-type: none"> <li>– Coordinated development and management of water, land and related resources to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems (Global Water Partnership)</li> </ul>
Irrigation association (IA)	<ul style="list-style-type: none"> <li>– Groups of irrigation farmers established with Ministry of Agriculture, Irrigation, and Livestock (MAIL) assistance to manage secondary and tertiary canals</li> </ul>
Irrigation system or scheme	<ul style="list-style-type: none"> <li>– System comprising an area of irrigable land and its irrigation</li> </ul>
Main or primary canal	<ul style="list-style-type: none"> <li>– Canal that conveys water from main intake / headworks to offtakes</li> </ul>
Main system	<ul style="list-style-type: none"> <li>– Headworks plus main canal(s) in an irrigation system</li> </ul>
Mirab bashi	<ul style="list-style-type: none"> <li>– Water master responsible for overall management of a surface water system (Kunduz and Balkh)</li> </ul>
Mirab	<ul style="list-style-type: none"> <li>– Water master responsible for main and secondary canal sections (Herat)</li> </ul>
Off-take	<p>Also known as a turnout. A structure at the head of a secondary or tertiary canal controlling the discharge of water</p>

## GLOSSARY

	into the canal.
On-farm water management (OFWM)	– (Improved) water management at the farm level eg by construction of field canals, water distribution management, field levelling, crop planning to match water supply, etc
Outcome	– Likely or achieved short-term and medium-term effects of an intervention's outputs (OECD 2002)
Outputs	– Products, capital goods, and services that result from a development intervention; may also include changes relevant to the achievement of an intervention's outcomes resulting from the intervention (OECD 2002)
Risk	– Factors that affect or are likely to affect the successful achievement of an intervention's objective (OECD 2002)
River basin approach	– Integrated management to manage water resources in a river basin
River basin management	– Management of water resources within a river basin, often focusing on water sharing
River basin	– A catchment area with water naturally flowing in a common course (the area from which water drains to a river where it enters the sea, a terminal lake, or joins another river)
River sub-basin	– A subdivision of a river basin that is itself a river basin
Secondary canal	– A canal into which water flows from a primary canal via a secondary intake
Secondary intake	– Opening in a primary canal through which water flows into a secondary canal; in modern systems, the gate or proportional divider used to control flow at this point
Wash structure	A structure (e.g. a check dam) built to reduce the velocity of the flow of water down a wash (also referred to as a gully or ravine) thereby reducing erosion and flash flooding.
Water user association (WUA)	– An association of water users (normally within a system) formed to manage irrigation infrastructure at the main canal level, and water distribution along the main canal for different users - irrigation, hydro power, flour mills or other industrial water uses.
Watershed / catchment management	– Management of land and water within a watershed or catchment, often focusing on management to reduce water pollution or soil erosion

## NOTE

In this report, "\$" refers to US dollars.

The Afghanistan calendar year commences on 21 March. The current year is 1395 from 21 March 2016 to 20 March 2017. In 2011, the Government of the Islamic Republic of Afghanistan (GoIRA) changed its fiscal year end to 20 December, three months before the end of the Afghan calendar year.

This initial environmental examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section of the ADB website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.



## CONTENTS

	<b>PAGE</b>
<b>ABBREVIATIONS .....</b>	<b>III</b>
<b>WEIGHTS AND MEASURES .....</b>	<b>IV</b>
<b>GLOSSARY.....</b>	<b>IV</b>
<b>CONTENTS.....</b>	<b>IX</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>XIII</b>
<b>I. INTRODUCTION .....</b>	<b>1</b>
A. Purpose of Report.....	1
B. Identification of Project and Project Proponents.....	1
C. Nature, Size, Location, and Importance of Project .....	1
D. IEE Boundaries.....	2
E. Scope of IEE.....	2
F. Level of Detail and Comprehensiveness .....	3
G. Structure of Report.....	3
<b>II. POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK .....</b>	<b>3</b>
A. Afghanistan.....	3
B. ADB.....	7
C. Environmental Screening & Categories.....	9
<b>III. DESCRIPTION OF THE PROJECT.....</b>	<b>10</b>
A. Project Justification and Rationale .....	10
B. Project Impact, Outcome, and Outputs .....	10
C. Project Implementation Arrangements .....	11
D. Screening And Categorization Of The Project and RSPs.....	13
E. Description of RSP Sharawan.....	13
F. Description of RSP Seyaab.....	15
G. Description of RSP Laqi.....	16
<b>IV. DESCRIPTION OF THE ENVIRONMENT .....</b>	<b>17</b>
A. Basin / Regional Background.....	17
B. Description of Environment – RSP Sharawan .....	26
C. Description of Environment – RSP Seyaab .....	31
D. Description of Environment – RSP Laqi .....	34
<b>V. ALTERNATIVES .....</b>	<b>37</b>
A. No-Project Alternative .....	37
B. Selection of RSPs.....	37
<b>VI. POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES .....</b>	<b>37</b>
A. Relevant Findings of Monitoring Reports of Previous Similar ADB Afghanistan Projects.....	37



B.	RSP Impacts and Mitigation.....	38
<b>VII.</b>	<b>ENVIRONMENTAL MANAGEMENT PLAN .....</b>	<b>41</b>
A.	Mitigation Plan .....	41
B.	Monitoring Plan.....	42
<b>VIII.</b>	<b>PUBLIC CONSULTATION AND INFORMATION DISCLOSURE .....</b>	<b>42</b>
A.	RSP IEE Consultation and Disclosure.....	42
B.	EMP Implementation Consultation and Disclosure.....	44
C.	RSP Pre-Construction Water Access Point Consultation and Disclosure .....	44
D.	RSP Construction-Phase Consultation and Disclosure .....	44
E.	RSP Operation-Phase Consultation and Disclosure.....	45
<b>IX.</b>	<b>GRIEVANCE REDRESS MECHANISM .....</b>	<b>45</b>
A.	Complaints on Similar ADB Water Resources Projects in Afghanistan.....	45
B.	Proposed Mechanism, Procedure, and Timeframe .....	45
<b>X.</b>	<b>FINDINGS AND RECOMMENDATIONS.....</b>	<b>46</b>
A.	Project Justification .....	46
B.	Risks and Assurances .....	46
C.	Updating of EMP and Public Consultation/Disclosure Plan During Implementation And Operation.....	46
<b>XI.</b>	<b>CONCLUSIONS.....</b>	<b>46</b>
	<b>APPENDIX 1: RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST, RSP SHARAWAN ..</b>	<b>69</b>
	<b>APPENDIX 2: RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST, RSP SEYAAB .....</b>	<b>72</b>
	<b>APPENDIX 3: RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST, RSP LAQI .....</b>	<b>75</b>
	<b>APPENDIX 4: RSP SHARAWAN – BENEFICIARY IDENTIFIED PROBLEM LOCATIONS AND     POTENTIAL CIVIL WORKS SOLUTIONS.....</b>	<b>78</b>
A.	Introduction .....	78
B.	Sedimentation in the Main Canal Immediately Below the Intake .....	78
C.	Main Canal Erosion and Low Banks.....	78
D.	Secondary Canal Erosion and Low Banks .....	79
E.	Inadequate Irrigation Flow Control at Offtakes on Main Canal .....	79
	<b>APPENDIX 5: RSP SEYAAB – BENEFICIARY IDENTIFIED PROBLEM LOCATIONS AND     POTENTIAL CIVIL WORKS SOLUTIONS.....</b>	<b>89</b>
A.	Introduction .....	89
B.	Non-Functioning Damaged Intake Structure .....	89
C.	Main Canal Erosion and Low Banks.....	89
D.	Inadequate Irrigation Flow Control at Offtakes on Main Canal .....	89
	<b>APPENDIX 6: RSP LAQI – BENEFICIARY IDENTIFIED PROBLEM LOCATIONS AND     POTENTIAL CIVIL WORKS SOLUTIONS.....</b>	<b>98</b>
A.	Introduction .....	98
B.	Approach Channel and Intake Problems.....	98

C.	Main Canal Erosion and Low Banks.....	98
D.	Inadequate Irrigation Flow Control at Offtakes on Main Canal .....	99
E.	Main Canal Lining at Haikal .....	100
<b>APPENDIX 7: LISTED SIGNIFICANT ANCIENT SITES WITHIN THE RUD-I-SHARAWAN COMMAND AREA .....</b>		<b>109</b>
<b>APPENDIX 8: LESSONS LEARNED ABOUT IMPACTS, MITIGATION, AND GRM FROM DISCLOSED BIENNIAL MONITORING REPORTS OF PREVIOUS SIMILAR ADB AFGHANISTAN PROJECTS .....</b>		<b>113</b>
A.	Introduction .....	113
B.	Observed Impacts and Mitigation Performance.....	113
C.	Construction-Phase EMP Implementation Arrangements.....	114
D.	Complaints, Resolution, and GRM .....	114
E.	Observations of EMR Organization and Timeliness .....	115
F.	Project Descriptions and EMR Summaries.....	116
<b>APPENDIX 9: EXAMPLE STANDARD CONSTRUCTION CONTRACT ENVIRONMENTAL SAFEGUARD CLAUSES.....</b>		<b>124</b>
A.	Environmental Protection and Control of Pollution .....	124
G.	Reporting .....	126
H.	Environmental Management Plan .....	126
<b>APPENDIX 10: RSP IEE PUBLIC CONSULTATION MEETING RECORDS.....</b>		<b>128</b>

**TABLES**

Table 1: RSP Sharawan, Requested and Selected Civil Works .....	48
Table 2: RSP Seyaab, , Requested and Selected Civil Works .....	49
Table 3: RSP Laqi, Requested and Proposed Civil Works .....	50
Table 4: RSP Sharawan, Tree Removal Survey Data .....	51
Table 5: RSP Seyaab, Tree Removal Survey Data .....	51
Table 6: RSP Laqi, Tree Removal Survey Data .....	51
Table 7: Summary of Mitigation Measures .....	52
Table 8: Summary of Monitoring Requirements .....	55
Table 9: Concerns Expressed in RSP Public Consultation Men Meetings.....	57

**FIGURES**

Figure 1: MEW Organogram Post 2011 Reorganization Showing Relationships With Other Water Management Institutions.....	58
Figure 2: RSP Sharawan, Selected Civil Works Schematic.....	59
Figure 3: RSP Sharawan, Selected Civil Works Superimposed On Satellite Image .....	60
Figure 4: RSP Seyaab, Selected Civil Works Schematic.....	61
Figure 5: RSP Seyaab, Selected Civil Works Superimposed On Satellite Image .....	62
Figure 6: RSP Laqi, Selected Civil Works Schematic.....	62
Figure 7: RSP Laqi, Selected Civil Works Superimposed On Satellite Image.....	63
Figure 8: Afghanistan Panj-Amu Basin and Its Sub-Basins .....	64
Figure 9: Archaeological Dating of Irrigation Canals, Panj-Amu Basin .....	65
Figure 10: Köppen Climate Zones, Panj-Amu Basin Showing RSP Locations.....	66
Figure 11: Rud-i-Sharawan Inter-Basin Link Section, False-Color Elevation Model.....	67

## EXECUTIVE SUMMARY

**The Project** This initial environmental assessment (IEE) assesses the impacts of three representative subprojects (RSPs) of the Panj-Amu River Basin Project (the Project), Afghanistan. The Project will support (i) new construction, rehabilitation, and upgrading of irrigation and ancillary infrastructure in the Panj-Amu basin at about 21 priority schemes selected during implementation, and strengthened basin-based integrated water management capacity; (ii) improved on-farm water management, and (iii) watershed management schemes.

RSP activities with potential to cause environmental impacts are:

- Construction site clearance and preparation including tree removal, at sites of new/rehabilitated headworks, irrigation offtake structures, wash structures, and erosion control works, on primary and higher-order canals in existing irrigation schemes
- (Re)excavation of foundations, borrow pits, and canals
- Dewatering
- Management and disposal of excavation spoil
- Temporary closure of irrigation canals
- Temporary blockage of foot / vehicle paths / roads
- Excavation of temporary canals
- Creation and use of temporary construction access roads and paths
- Sourcing construction materials from existing quarries and/or quarrying of such materials
- Creation of on-site stockpiles of construction materials
- Creation & disposal of solid and liquid waste
- Operation and maintenance of vehicles and equipment
- Creation of reinforced concrete structures
- Operation of upgraded irrigation systems
- Knock-on changes in agricultural practices

The Project is classified Category B for environment. The executing agency is the Ministry of Finance, and the implementing agencies are the Ministry of Energy and Water (MEW) and the Ministry of Agriculture, Irrigation, and Livestock (MAIL).

**Project Impact, Outcome, and Outputs** *Impact:* Increased per-capita income and reduced poverty among rural and pastoral communities.  
*Outcome:* Increased agricultural productivity in the Panj-Amu river basin  
*Outputs:*

1. Water allocation and availability improved
2. On-farm water management enhanced
3. Watersheds properly managed and protected

**Environmental Due Diligence** *Initial Environmental Evaluation*  
*Environmental Assessment and Review Framework*

## Environmental Impacts and Environmental Management Plan

The subprojects have minimal impact since an implicit least-cost analysis of a set of eligibility and prioritization criteria was used for sub-project selection. Criteria included 'No significant potential environmental impact as outlined in the ADB Safeguard Policy Statement (June 2009)' - more specifically, GoIRA Category 1 subprojects, and Category 2 subprojects for which NEPA requires EIA, are excluded from Project financing as are ADB Category A subprojects – and 'Not in an environmentally protected area.'

In addition, the works are small-scale and along the ROW so any negative impact is minimal. The only impact of any note for the three representative sub-projects is the removal of 346 willow trees (201 mature trees and 145 saplings) which will need to be re-planted.

**Construction.** The potential construction-phase impacts and corresponding mitigation / management measures are:

- *Impact:* Loss of landscape, viewshed value, and habitat value due to tree removal on the public right of way of canals at construction sites (Table 4, Table 5, and Table 6).<sup>1</sup>  
*Management:* Tree plantation of native species at alternate sites will be identified in consultation with local communities. If agreed, this will be in surrounding hillsides as part of the tree plantation under output 3. If not agreed, suitable sites on public land will be identified in the irrigation scheme, and plantation undertaken by the civil works contractor. This will be a contract requirement.
- *Impact:* Temporary disruption of irrigation water supplies at in-canal construction sites, or blockage of vehicle, pedestrian, and livestock movement. *Management:* The civil works contractor will provide temporary irrigation channels and roads/paths. This will be a contract requirement. Works, where possible, will be prioritized during the late autumn and winter seasons, depending on the weather and accessibility.
- *Impact:* Loss of landscape and viewshed value, landform alteration/destruction, erosion, landslides, sedimentation, and water pollution from quarries used to source or created to obtain construction materials. *Management:* Contract provisions will state that the contractor must seek prior approval from the PIO (who will obtain PMO approval) on the selection of quarry sites.
- *Impact:* Landscape alteration (impacts on topography), canal sedimentation, and water pollution from improperly managed excavation spoil. *Management:* The contractor will select and manage spoil disposal sites to avoid adverse impacts. Prior approval from the PIO on the selection of spoil sites will be undertaken. This will be a contract requirement. The PIO will ensure such spoil sites have been selected with community agreement.
- *Impact:* Landscape disruption (impacts on topography) from borrow pits and redundant canals left unfilled post-construction.

---

<sup>1</sup> Impacts of the removal of trees on tree users are addressed by the RSPs' Land Acquisition and Resettlement Plans (LARPs).

*Management:* The contractor will fill in of pits and redundant canals when no longer needed. This will be a contract requirement.

- *Impact:* Impacts to cultural resources could occur due to unexpected discoveries in the construction process. (some Project area canals are thought to be several thousand years old). *Management:* Contract provisions will state that: "In the event of unanticipated discoveries of cultural or historic artifacts (movable or immovable) in the course of the work, the contractor shall take all necessary measures to protect the findings and shall notify the PIO and SBA representatives".
- *Impact:* While not envisaged as part of the three RSPs, there could in theory be crop damage from temporary construction roads. *Management:* The contractor will minimize/avoid damage through community consultation re timing and placement. If significant damage is expected then the LARP will be updated compensation to affected farmers provided.
- *Impact:* Routine construction-phase impacts (dust, noise, vibrations, air pollution, liquid and solid waste generation, occupational health and safety). *Management:* Tenders include standard construction contract environmental safeguard clauses (Appendix 9) that require bids to include site environmental management plans (SEMPs); construction supervision tracks SEMP implementation.
- *Impact:* Impact on fauna. There will be no direct impact on fauna. There may be indirect impacts due to tree removal, water pollution and topographical changes. See mitigation measures above.
- *Impact:* Impact on protected areas will be zero as one of the selection criteria is that no sub-projects are to be located in or in the vicinity of protected areas.
- *Impact:* Impact on socio-economic environment. No new irrigation channels will be built so no communities will be split. There will be a positive impact on work availability due to the need for temporary construction staff from the local area during the construction period (over seven years). Temporary water supply distribution problems will be negated through temporary channels. Health and safety aspects of construction will be mitigated by the construction contractors. There will be no impact on any public infrastructure such as transmission lines...etc. See a full list of mitigation measures above which address socio-economic impacts.

**Operation.** The main potential subproject operation impacts are:

- *Impact:* Hydrologic changes - changes in magnitude and timing of water abstraction, irrigation flows, flooding, drainage, erosion, and sedimentation. While such changes could potentially be negative, it is more likely that there will be a positive impact through improved availability of water for environmental flows. The impact on groundwater quantity will be negligible, or in fact

positive, due to the construction of check dams and other structures to slow down water velocity on hillsides which will increase water infiltration. *Management*: Irrigation works are well-designed and constructed; irrigation and water user associations and river sub-basin / basin agencies are supported to achieve intended benefits while mitigating adverse impacts.

- *Impact*: Knock-on impacts of increased agricultural production due to improved water availability – on soil and water (including groundwater) quality due to increased use of fertilisers and pesticides. *Management*: Under output 2, training will be provided to farmers by DAILs on improved agronomic practices including correct application of fertilisers and pesticides, so as to mitigate any negative impact.
- *Environment-on-project (EOP) impacts*: of erosion, sedimentation, flooding, drought, and climate variability on irrigation infrastructure, farmer behavior, and benefit realization. Impacts will likely be positive. Soil erosion (and vegetation loss) and sedimentation will be reduced from reforestation and structures such as check dams in surrounding watersheds. While not a priority in the three representative sub-projects, any canal bank protection will also have a positive impact on terrestrial ecology from preventing soil and vegetation from being washed away. Flooding will also be reduced from watershed interventions, as well as the construction or improvement of intakes. Improved water availability will reduce the impact of droughts. *Management*: Project management systems to ensure irrigation works are well-designed and constructed; support to irrigation associations (IAs) and water user associations (WUAs) and river sub-basin / basin agencies to reduce EOP impacts and increase resiliency to them. This will include training to WUAs and IAs on O&M of irrigation infrastructure, and protection and management of watershed in the vicinity of schemes, under output 3.
- *Impact*: Impact on fauna. There will be no direct impact on fauna. There may be indirect impacts due to soil erosion and water quality and quantity changes. See mitigation measures above. Such impacts are likely to be positive as a result of project interventions.
- *Impact*: Impact on protected areas will be zero as one of the selection criteria is that no sub-projects are to be located in or in the vicinity of protected areas.
- (i) *Impact*: Impact on socio-economic environment. Impacts will be positive due to a reduction in poverty from improved farm incomes, and an increase in work availability due to an increase in farm labor requirements. The project will also have a positive impact on domestic and livestock water supply through the construction of water access points. No new irrigation channels will be built so no communities will be split.

## Main

*Risk*: Security and governance issues. *Assurance*: Subprojects selected in

**Environmental Risks and Assurances** more secure areas. Sustained engagement of project proponents with local government and communities, farmers, and traditional water managers. Strengthening of local institutions.

*Risk:* Occurrence of low-frequency, large-magnitude EOP impact events during subproject operation that damage new/rehabilitated infrastructure, and incremental agricultural investment. *Assurance:* Availability of Government and donor post-disaster relief and rehabilitation support to affected communities.

**Conclusion** Residual adverse impacts of the three assessed RSPs are not expected to be significant after the implementation of feasible environmental management measures. Therefore this IEE is the completed environmental assessment of these RSPs, and will be included in MEW's application to the National Environmental Protection Agency (NEPA) for RSP environmental clearance. Determination by NEPA that an environmental impact assessment (EIA) is required for an RSP renders that RSP ineligible for Project financing.





## I. INTRODUCTION

### A. Purpose of Report

1. This Initial Environmental Examination (IEE) has been prepared for three representative subprojects (RSPs) of Output 1 of the Panj-Amu River Basin Project (the Project), Afghanistan. The Project is classified ADB Environmental Category B. Category B projects require environmental assessment in the form of an initial environmental examination (IEE). IEE findings are then used to determine if an environmental impact assessment (EIA) is needed. If it is not, the IEE becomes the final environmental assessment report.

### B. Identification of Project and Project Proponents

2. The Panj-Amu River Basin Project (the Project) continues and expands upon previous European Union (EU) support for irrigation development in the Panj-Amu basin.
3. Project proponents are the Government of the Islamic Republic of Afghanistan (GoIRA), ADB, and the EU. The Project Executing Agency (EA) is the Ministry of Finance. The Implementing Agencies (IA) are the Ministry of Energy and Water (MEW) and the Ministry of Agriculture, Irrigation, and Livestock (MAIL).
4. MEW will be responsible for (i) construction of civil works on main (primary) canals; (ii) establishment and strengthening of water user associations (WUAs) in such schemes; and (iii) strengthened water resources planning and management.
5. MAIL will be responsible for (i) construction of civil works on secondary and higher-order canals; improved on-farm water management (OFWM) including establishment and strengthening of irrigation associations (IAs), agricultural extension, land levelling etc; and improved watershed management.
6. The Project will be financed through an ADB sector grant. It will have a seven-year implementation period and an estimated cost of \$76.75 million (\$50 million in EU funds and \$20 million in ADB funds and \$0.75 million in government in-kind contributions).

### C. Nature, Size, Location, and Importance of Project

#### 1. The Project

7. The Project will support improved water allocation and availability, enhanced on-farm water management, and protection of watersheds in the Panj-Amu basin, through construction of water conveyance and irrigation infrastructure at 21 priority subprojects (construction costs approximately \$50 million); the establishment, strengthening, and support of subproject water user associations (WUAs) and irrigator associations (IAs); training on on-farm water management and improved agronomic techniques; implementation of watershed management plans at sites adjacent to the priority subprojects; and improved basin water resources planning and management (see para. 52ff).

8. The importance of the Project is in its impact on the well-being of rural communities in the basin, and in its support for Afghanistan's sector investment plan, the \$1.1 billion National Water and Natural Resources Development Program.<sup>2</sup>

## **2. Representative Subprojects**

9. The three representative subprojects (RSPs) assessed by this IEE are RSP Sharawan, RSP Seyaab, and RSP Laqi. These RSPs were selected from a candidate shortlist of 21 subprojects screened in from a long list of 62 subprojects identified and prioritized by the Ministry of Energy and Water (MEW), the Panj-Amu River Basin Agency (RBA), and its Sub-Basin Agencies (SBAs). Shortlisting criteria included indicators of technical, economic, social and environmental viability and consistency with Project design. The process is described in more detail in the EARF.
10. All three RSPs will be implemented by MEW under Output 1 of the Project (para. 55).

## **D. IEE Boundaries**

11. The boundaries of the IEE study are:
- (i) the basin for larger-scale longer-term environmental baseline description (climate, hydrology, history of human occupation etc) and impacts (cumulative, environment-on-project);
  - (ii) provinces or districts within which RSPs are located for baseline description relying on secondary census data;
  - (iii) irrigation scheme command areas (of the irrigation schemes within which the RSPs will construct, rehabilitate, and upgrade selected civil works) for the remaining environmental baseline description and the IEE public consultation;
  - (iv) civil work command areas (of the specific irrigation infrastructure to be rehabilitated and upgraded by the RSPs) for assessment and management of irrigation- and agriculture-related impacts;
  - (v) construction site and adjacent areas for assessment and management of construction impacts; and
  - (vi) potential quarry sites and adjacent areas for assessment and management of quarrying impacts.

## **E. Scope of IEE**

### **1. Methodology**

12. The IEE study was prepared for and in coordination with MEW and MAIL from November 2015 to June 2016 during the project preparation technical assistance (PPTA), by Sara Bennett, PPTA international environment specialist, Zahir Nadery, PPTA national environment specialist, and Morsal Satarzada, women IEE public consultation meeting facilitator. IEE team members Mr Nadery and Ms Satarzada visited the three RSPs. During the IEE visits, a public consultation program was undertaken (see para. 257ff).

---

<sup>2</sup> Though the plan's nominal three-year period has concluded, the plan remains in place with elements still in need of financing.

## **2. IEE Information Sources and Limitations**

13. A key limitation to the IEE study was the security situation in the RSP areas, and on the roads between them and Kabul. PPTA international consultants were not permitted to visit the basin and RSPs, and national consultants were advised to limit their time in the field.
14. This IEE incorporates all information available at the time of writing.
15. The implementation-phase environment specialists will review and revise this IEE and EMP as needed to correspond to the final engineering feasibility studies and designs for the three RSPs.

## **F. Level of Detail and Comprehensiveness**

16. The level of detail and comprehensiveness of an environmental assessment should be commensurate with project complexity and the significance of its potential impacts and risks. This IEE identifies and focuses on the limited potential impacts and risks of the three RSPs. As the RSPs do not have a broad range of potential significant impacts and risks, a broader assessment of direct, indirect, cumulative and induced impacts, has not been undertaken.<sup>3</sup>

## **G. Structure of Report**

17. The remainder of this report consists of the following sections:
  - (i) Policy, legal, and administrative framework
  - (ii) Description of the project
  - (iii) Description of the environment
  - (iv) Anticipated impacts and mitigation measures
  - (v) Environmental management plan (EMP, i.e. mitigation plan and monitoring plan)
  - (vi) Public consultation and information disclosure
  - (vii) Grievance redress mechanism (GRM)
  - (viii) Findings and recommendations
  - (ix) Conclusion

## **II. POLICY, LEGAL, AND ADMINISTRATIVE FRAMEWORK**

### **A. Afghanistan**

#### **1. Legal System**

18. Constitutional articles pertaining to environmental management are:
  - Article 40 [Private Property]
    1. Property is immune from invasion.
    2. No person shall be forbidden from acquiring and making use of a property except within the limits of law.
    3. Nobody's property shall be confiscated without the provisions of law and the order of an authorized court.

---

<sup>3</sup> ADB (2012). Environment safeguards, a good practice sourcebook, draft working document. Para. 29.

4. Acquisition of a person's property, in return for a prior and just compensation within the bounds of law, is permitted only for securing public interests in accordance with the provisions of law.
  5. Inspection and disclosure of a private property are carried out only in accordance with the provisions of law.
- Article 51 [Compensation]
    1. Any person suffering undue harm by government action is entitled to compensation, which he can claim by appealing to court.
    2. With the exception of situation stated in the law, the state cannot claim its right without the order of an authorized court.
  - Article 15 [Environment] The state is obliged to adopt necessary measures for safeguarding forests and the environment.<sup>4</sup>

## 2. International Environmental Agreements

19. The Constitution binds the state to abide by the UN charter, international treaties, international conventions that Afghanistan has signed, and the Universal Declaration of Human Rights (Article 7).<sup>5</sup>

20. International agreements relevant to environmental management of water resources development to which Afghanistan is a party are (listed in order by the year in which each came into force):

- *Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, 1975)* – international cooperation to control trade in species threatened with extinction or in danger of becoming so; in species whose trade interferes with regulation of trade in extinction-threatened species; and, in species identified by a Party under national-level trade control to prevent/restrict exploitation, for which international cooperation is needed
- *Convention on the Conservation of Migratory Species of Wild Animals (also called Convention on Migratory Species, CMS, and the Bonn Convention, 1983)* – conserve terrestrial, marine and avian migratory species throughout their ranges
- *UN Convention on Biological Diversity (1993)* – objectives were to conserve biological diversity; promote sustainable use of biological diversity; and (iii) seek more fair and equitable sharing of the benefits genetic resource utilization
- *UN Framework Convention on Climate Change (1994)*– stabilize greenhouse gases in the atmosphere at levels that will not change the climate system in dangerous ways
- *UN Convention to Combat Desertification (1996)* - combat desertification and mitigate drought effects in countries experiencing serious drought or desertification
- *Kyoto Protocol (2005)* – extended the Convention on Climate Change

21. In addition, Afghanistan has signed but not ratified:

---

<sup>4</sup> Constitution of Afghanistan (2004). English translation retrieved 21 Mar 2016 from [https://en.wikisource.org/wiki/Constitution\\_of\\_Afghanistan](https://en.wikisource.org/wiki/Constitution_of_Afghanistan)

<sup>5</sup> This Article, unambiguous as it may appear, however leaves open to interpretation many aspects of the incorporation and compatibility of international law with Afghan domestic law. See for example: Galland, M., Berquist, E., Handler, S. G., Reed, N., & Sulmeyer, M. (2011). *An introduction to international law for Afghanistan*. Afghanistan Legal Education Project (ALEP) at Stanford Law School. Retrieved from <https://www-cdn.law.stanford.edu/wp-content/uploads/2015/12/Intro-to-International-Law-for-Afg.pdf>

- *UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property (1970)* – protect cultural property against theft and promote restitution of stolen items
- *Ramsar Convention on Wetlands (1975)* – promote conservation and sustainable use of wetlands
- *Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (1992)* – reduce movements of hazardous waste between nations, prevent transfer of such waste from developed to less developed countries (LDCs); minimize waste amounts and toxicity; promote environmentally sound management at or near generation sites; assist LDCs in environmentally sound management of their wastes; does not address radioactive waste
- *Memorandum of Understanding Concerning Conservation Measures for the Siberian Crane (1993)* – protect the species through concerted, coordinated actions to prevent disappearance of remaining populations
- *UNIDROIT Convention on Stolen or Illegally Exported Cultural Objects (1995)* – attempts to fill gaps in the UNESCO convention by making the final owner of a stolen cultural item who cannot show due diligence responsible for restitution
- *UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2006)* – safeguard, ensure respect for, and raise awareness at local, national, international levels, and provide for international cooperation and assistance.

### 3. National Legislation, Policies, and Regulations

#### a. Environmental Management

22. **Environment Act (2007)** sets forth national administrative roles and coordination with provincial authorities; establishes management frameworks for natural resource conservation, biodiversity, drinking water, pollution control, and environmental education; and defines enforcement tools.<sup>6</sup>
23. **National Environmental Impact Assessment Policy (2007)** follows on from the Environment Law and sets forth a policy vision, principles, strategy, and process for environmental assessment in Afghanistan. The emphasis is on ensuring that projects with potentially significant impacts are identified to the national environmental regulator, the National Environmental Protection Agency (NEPA), and follow adequate due diligence procedures. The document provides a range of additional useful information on NEPA and environmental assessment in the Afghanistan context.
24. **Environmental Impact Assessment Regulations. Official Gazette No. 939 (Mar 2008)**. Schedule I that list project types likely to have significant impacts (Category 1) or potentially adverse impacts (Category 2); and the industries likely to give rise to pollution. Schedule II provides the clearance certificate application form.
25. **Administrative Guidelines for the Preparation of Environmental Impact Assessments (Jun 2008)**. These guidelines were prepared as a companion to the 2008 Regulations, to guide proponents on interacting with the National Environmental Protection Agency, on public consultation, and roles and responsibilities of stakeholders.
26. **Water Law (2009)**. The Water Law states that water is owned by the public and that Government is responsible for water protection and management. It assigns

<sup>6</sup> Taylor, D. A. (2006). Policy: new environment law for Afghanistan. *Environmental Health Perspectives*, 114(3). Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1392251/>

responsibilities to government institutions for management and protection of water resources, water ownership, and regulates water ownership fees, rights, permits, and usage.<sup>7</sup>

27. **Law on the Protection of Historical and Cultural Properties, Issue No. 828 (2004).** After defining the material falling within its scope, the law sets forth the State's interest and rights in such materials, specifies prohibited and regulated activities involving such materials, and establishes enforcement measures such as penalties and fees.
28. **Pesticide Regulations (1989).** Afghanistan has had pesticide regulations since 1989, but they have never been enforced due to lack of resources.<sup>8</sup> A draft Pesticide Law dating from 2009 has yet to be enacted.

#### **b. Public Consultation**

29. The *Environment Law* (2007), Article 19, provides a legal framework for public consultation during environmental assessment:

##### Article 19. Public participation

1. Affected persons may express their opinion on a proposed project, plan, policy or activity, preliminary assessment, environmental impact statement, final record of opinion and comprehensive mitigation plan, before the approval of the project, plan, policy or activity, and the proponent must demonstrate to the National Environmental Protection Agency that affected persons have had meaningful opportunities, through independent consultation and participation in public hearings, to express their opinions on these matters on a timely basis....

3. The National Environmental Protection Agency shall not reach a decision on any application for a permit until such time that the proponent has demonstrated to the satisfaction of the National Environmental Protection Agency that the proponent has distributed copies of the document to affected persons, informed the public that the document is being made available for public review by advertising the document and displaying a copy of it for inspection, and convened and recorded the proceedings of a public hearing.

4. After the National Environmental Protection Agency has reviewed the conditions set forth in item 3 above, the National Environmental Protection Agency shall reach a decision and inform the public of that decision and make available any relevant documentation or information for public review.<sup>9</sup>

#### **c. Information Disclosure**

30. In December 2014, the *Access to Information Act* was signed by the President of Afghanistan. It has four objectives:
- To ensure the right of access to information for all citizens from the government and non-government institutions

<sup>7</sup> Ahmad, T. (2013). Legislation on use of water in agriculture: Afghanistan. Retrieved from <http://www.loc.gov/law/help/water-law/afghanistan.php>

<sup>8</sup> USAID Afghanistan. (2008). Afghanistan Accelerating Sustainable Agriculture Program (ASAP). Retrieved from [http://pdf.usaid.gov/pdf\\_docs/Pnadm436.pdf](http://pdf.usaid.gov/pdf_docs/Pnadm436.pdf)

<sup>9</sup> Unofficial English translation.

- To observe article 19 of International Covenant on Civil and Political Rights [ie freedom to seek, receive and impart information and ideas of all kinds etc] [consistent with the tenets and provisions of Islam; Article 3, Afghanistan Constitution].
- To ensure transparency and accountability in the conduct of governmental and nongovernment institutions.
- To organize request processing and provision of information.

#### **4. National Environmental Regulator and Proponents' Environmental Management Capacity**

##### **a. National Environmental Protection Agency**

31. First established in 2003 with the assistance of the United Nations Environment Programme (UNEP), in 2007 NEPA was formally recognized in the Environment Law. In 2015, NEPA had a staff of 850 staff and was active in each of Afghanistan's 34 provinces.
32. NEPA is responsible for environmental policymaking and is the national environmental regulatory agency. NEPA areas of work include oversight of the environmental impact assessment process and support for climate change adaptation, pollution control, and sustainable development.<sup>10</sup>

##### **b. Ministry of Energy and Water**

33. MEW is responsible for national water resources planning including basin planning; collection and analysis of hydrometric data; multipurpose dam/reservoir development; and the planning, construction, operation, and maintenance of water conveyance works (headworks and primary canals). MEW is represented the sub-national level by River Basin Agencies (RBAs) and Sub-basin Agencies (SBAs). MEW has no organizational units or line staff specifically assigned to environmental planning, assessment, and management.
34. In 2011, MEW was reorganized along basin and sub-basin boundaries, with business units focused on regulatory and management functions. Figure 1 shows the MEW organogram as of 2013, plus MEW's relationships with other water management institutions.

##### **c. Ministry of Agriculture, Irrigation, and Livestock**

35. With regard to irrigation, MAIL is responsible for on-farm water management at the secondary- and higher levels in all irrigation schemes. MAIL has no organizational units or line staff specifically assigned to environmental planning, assessment, and management.

#### **B. ADB**

##### **1. Policies**

36. **Safeguard Policy Statement (2009)**. SPS 2009 is ADB's current main safeguards policy document. It describes the common objectives and policy principles of ADB's

---

<sup>10</sup> UNEP helped to establish Afghanistan's National Environmental Protection Agency (NEPA). (2015, January 16). Retrieved from <http://capacity4dev.ec.europa.eu/unep/blog/unep-helped-establish-afghanistans-national-environmental-protection-agency-nepa>



safeguards, and outlines the delivery process for ADB's safeguard policy. It promotes sustainability through protection of people and the environment from the adverse impacts of projects, and by supporting the strengthening of country safeguard systems. It presents a consistent, consolidated framework for environment, resettlement, and indigenous people safeguards.<sup>11</sup>

37. **ADB Operations Manual, Safeguard Policy Statement, Section F1/BP [Bank policies] & Safeguard Review Procedures, Section F1/OP [operational procedures] (2013)**. These documents operationalize SPS 2009. The policy sets forth the scope of SPS 2009 applicability to ADB operations, and the procedures describes the safeguards process and outputs, including consultation and disclosure requirements, through the various stages of project preparation.
38. **Public Communications Policy (2011ca)** guides ADB's efforts to be transparent and accountable to the people it serves, which it recognizes are essential to development effectiveness. The policy recognizes the right of people to seek, access, and impart information about ADB's operations, and it aims to enhance stakeholders' trust in and ability to engage with ADB, through proactive disclosure, presumption in favor of disclosure, recognition of the right to access and impart information and ideas, country ownership, limited exceptions, and the right to appeal.

## 2. Guidance

39. **Environmentally Responsible Procurement (2007)**. provides guidance to ADB staff, consultants, and executing agencies on ERP, defined as "a systematic approach to the purchase of goods and services that are thought to be less damaging to the environment than other goods and services that serve the same purpose," specifically, products that "reduce waste, improve energy efficiency, limit toxic by-products, contain recycled content or are reusable, and are produced with the least environmental impact...[and] services...that help improve the environment, are rendered with minimum environmental and social impacts, and use resources and energy efficiently.
40. **Complaint Handling in Development Projects - Grievance Mechanisms: A Critical Component of Project Management (2010)**. This document presents definitions, concepts, rationale, and history relevant to the ADB project grievance redress mechanism.
41. **Complaint Handling in Development Projects - Building Capacity for Grievance Redress Mechanisms (2010)**. This document presents a framework and practical suggestions for building the capacity of an organization to manage an effective grievance redress mechanism.
42. **Environment Safeguards, A Good Practice Sourcebook (2012)**. This draft working document aims to add clarity, provide technical guidance, and recommend good practices in SPS (ADB 2009) implementation. It updates the *Environmental Assessment Guidelines* (ADB 2003).
43. **Selected References for Good Practice In Environmental Safeguards Implementation (2014)**. This internal Central and West Asia Department (CWRD) document presents internet hyperlinks to exemplary environmental safeguards documents (IEEs, EIAs, EARFs, etc) prepared for CWRD country projects.

---

<sup>11</sup> ADB (n.d.). *Safeguard policy statement* [webpage] <http://www.adb.org/documents/safeguard-policy-statement>

## C. Environmental Screening & Categories

### 1. ADB

44. ADB water resources projects and subprojects are screened using a rapid environmental assessment checklist for irrigation projects (Appendices 1, 2, and 3 contain checklists filled out for the three RSPs; see paras. 67 and 68). This checklist captures the type; location, sensitivity, scale, nature, and magnitude of potential environmental impacts; and availability of cost-effective mitigation measures. Based on the checklist findings, the project or subproject is assigned to one of the following ADB environmental categories:<sup>12</sup>

- **Category A** – likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment (EIA), including an environmental management plan (EMP), is required.
- **Category B** – potential adverse environmental impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination (IEE), including an EMP, is required.
- **Category C** – A proposed project is likely to have minimal or no adverse environmental impacts. An EIA or IEE is not required, although environmental implications need to be reviewed.

45. The category of a project is determined by its most sensitive component (output). Outputs 1 and 2 of this Project define it as category B.

46. Subprojects assigned to Category A are excluded from Project financing.

### 2. Government of Afghanistan

47. As set forth in the 2008 EIA Regulations, a project or subproject is assigned to one of the following environmental categories:

- **Category 1** – likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented, and affects an area broader than the sites or facilities subject to physical works.
- **Category 2** – if its potential adverse environmental impacts on human populations or environmentally sensitive areas (eg wetlands, forests, grasslands and other natural habitats) are less adverse than those of Category 1 projects. These impacts are site-specific, and few are irreversible.

48. In addition, EIA Regulations Schedule I lists project types that are automatically assigned to these two categories. Category 1 and 2 projects must obtain a Certificate of Compliance from NEPA prior to starting construction. Certificate applications consist of a screening report and the application form in EIA Regulations Schedule 2.

49. The regulations state that a proponent intending to undertake multiple projects in a particular area should prepare a single screening report and assign the environment

---

<sup>12</sup> ADB (n.d.) Safeguard categories. <http://www.adb.org/site/safeguards/safeguard-categories>

category appropriate to the projects' collective potential environmental impacts. Separate screenings are unacceptable.

### III. DESCRIPTION OF THE PROJECT

#### A. Project Justification and Rationale

50. Since 2004, the European Union (EU) has supported the Government of Afghanistan (GoIRA) in its reconstruction efforts by funding integrated water management programmes in the Panj Amu river basin. The current iteration, the Panj-Amu River Basin Programme, will end in mid-2016.
51. The Project continues this EU support in partnership with ADB as co-financier and administrator. This approach aims to improve Government's ownership of fund management and conform to EU policy in Afghanistan of moving funding on-budget or into co-financing arrangements, and to increase sustainability.

#### B. Project Impact, Outcome, and Outputs

52. The Project's intended impact, outcome, and output are described here, with details of their activities and approximate costs.
53. **Impact.** Increased per-capita income and reduced poverty among rural and pastoral communities.
54. **Outcome.** Increased agricultural productivity in the Panj-Amu river basin.
55. **Output 1 – Water allocation and availability improved (\$54.4 million).** This output provides the capacity and resources for MEW, and associated River Basin Agency (RBA) and Sub-Basin Agencies (SBAs) in the Panj-Amu river basin to:
- *[Sub-component 1: Water conveyance infrastructure rehabilitated and upgraded]* Improve water conveyance and allocation to irrigated farm systems through rehabilitation and upgrading of water conveyance infrastructure (head works and main canals) for which MEW is responsible (see para. 33) in 21 priority schemes. Climate proofing and environmental enhancements, specifically, water access points on canals, will also be provided in these schemes. The 21 priority schemes were selected on the basis of provincial and sub-basin development priorities from a long list of candidate schemes identified by stakeholders. The schemes cover 74,500 ha total command area in four sub-basins (Lower Kunduz, Taloquan, Kokcha and Lower Panj-Amu). R&U of these schemes aims to improve the availability of water, particularly in tail-end areas; increase irrigated area; increase yields; increase cropping intensity; and create an enabling environment for capacity building and reduced water conflict. Gated headworks will allow exclusion of river flood flows and reduce flood damage to command areas.
  - *[Sub-component 2: WUAs established and strengthened]* Establish and strengthen capacity of 112 water user associations (WUAs) in respect of (i) WUA operation and maintenance (O&M) of conveyance infrastructure in their schemes (and others previously supported under the EU programme) to improve sustainability and increase equitability of within-scheme head-tail water distribution; and (iii) WUA cooperation with the RBA, SBAs, and same-subbasin WUAs to facilitate water sharing among schemes in a sub-basin.

- *[Sub-component 3: Water resources planning and management strengthened]* Improve capacity of MEW, RBA, and SBAs to (i) plan, operate, and maintain their respective water resources infrastructure investment portfolios and (ii) address water sharing among schemes in a sub-basin, for increased total benefits and reduced sub-basin water conflicts.

56. **Output 2 – On-farm water management enhanced (\$14.65 million).** This output provides resources and enhanced capacity to MAIL, and to Panj-Amu river basin DAILs in up to five provinces (Kunduz, Takhar, Baghlan, Badakhshan and Bamyan), to:

- *[Sub-component 1: On-farm Irrigation infrastructure rehabilitated and upgraded]* improve irrigation infrastructure at secondary and tertiary canal levels, mainly in the 21 priority schemes (see para. 55) so as to have an integrated approach (including environmental enhancements to schemes i.e. water access points on canals).
- *[Sub-component 2: IAs established and strengthened]* establish and strengthen the capacity of at least 105 IAs to operate and manage irrigation infrastructure in these schemes thus improving sustainability, as well as ensuring more equitable distribution of water, increasing yields and cropping intensity, particularly in lower canal reaches, and thus reducing conflict over water use.
- *[Sub-component 3: Efficiency of agricultural water use enhanced]* improve water use efficiency at the farm level by improved on-farm water management and agronomic techniques with at least 6300 farmers having improved knowledge from 21 demonstration plots.

57. **Output 3 – Watersheds properly managed and protected (\$3.79 million).** This output provides resources and enhanced capacity to MAIL, and Panj-Amu river basin DAILs in up to five provinces (Kunduz, Takhar, Baghlan, Badakhshan and Bamyan), to:

- improve community-based watershed management, resulting in the restoration and protection of forestry and rangeland on 10,500 ha, through
  - preparation of a community-based natural resources management technical manual and guidebook
  - training of DAIL staff as master trainers to train communities
  - identification and selection of approximately 21 watershed and rangeland sites for restoration and protection
  - creation of community forestry and rangeland associations for each selected site
  - preparation and implementation of natural resource management plans for each selected site.

## C. Project Implementation Arrangements

### 1. Project Management Offices

58. PMOs will be established within the Kabul headquarters of MEW and MAIL. Each will monitor and evaluate progress, procurement, accounting, and report findings regularly to MOF and ADB.

59. MEW PMO will have a full-time environment safeguards officer who will be shared equally between the Project and the ongoing Water Resources Development Investment

Project (WRDIP). The MEW PMO environment safeguards officer will oversee implementation of the MEW environmental safeguards set forth in the EARF.

60. MAIL PMO will be based in the Irrigation Directorate, but will include the Output 3 Natural Resources Management (NRM) Coordinator based in the NRM Directorate, to avoid creating two MAIL PMOs. MAIL PMO staffing includes provision for a part-time environmental safeguards officer will be hired.

## **2. Project Implementation Offices**

61. MEW PMO will establish a Project Implementation Office (PIO) under the RBA. MAIL PMO will establish PIOs in the Project area DAILs.

## **3. Feasibility, Survey, and Design Consultants**

62. Feasibility study / design consulting services (FSDC) will be contracted to prepare for MEW the Output 1 feasibility studies and designs, including the feasibility and design phase environmental safeguards work, for rehabilitation and upgrading of water conveyance infrastructure (headworks, offtakes, main canal) in. The FSDC team will include international and national environment specialists who will screen and categorize these subprojects; prepare IEE-EMPs for Category B subprojects; and prepare environmental summaries for Category C subprojects. The FSDC environment specialists will also advise, assist, and train the MEW PMO environment officer and PIO construction supervisors as required to implement EARF environmental safeguards during bidding, contracting, and environmental procurement, and to implement the subproject EMP during construction and operation.

## **4. Implementation Consulting Services**

63. Implementation consulting services (ICS) will be contracted to provide technical advice and assistance to the MEW and MAIL PMOs and PIOs. With regard to Output 2 MAIL-executed rehabilitation and upgrading of irrigation civil works on secondary and higher order canals within selected Output 1 subprojects: an ICS international environment safeguards specialist will provide training and support to a national environment safeguards specialist to (i) screen and categorize the subprojects; (ii) prepare an environmental summary for each Category C subproject;<sup>13</sup> (iii) prepare an IEE-EMP for each Category B subproject; and (iv) advise, assist, and train MAIL PMO and PIOs in implementing environmental safeguards responsibilities tasked to them in the EARF and subproject IEE-EMPs. These responsibilities include (i) implementing environmental safeguards during bidding, contracting, and environmental procurement, (ii) monitoring and supervision of subproject mitigation and monitoring during subproject construction and operation, and (iii) oversight of public consultation, disclosure, and grievance mechanism activities.

## **5. Project Coordination Office**

64. The existing MOF Project Coordination Office (PCO) will facilitate coordination among MOF, MEW, and MAIL.

---

<sup>13</sup> Category C subprojects by definition do not have environmental impacts requiring bidding, contracting, and environmental procurement environmental safeguards nor mitigation nor monitoring, and therefore they do not have EMPs.

## 6. ADB Review Missions

65. ADB will conduct review missions twice annually during the first two years of Project implementation to:
- (i) assess implementation effectiveness and propose any necessary adjustments to the implementation arrangements;
  - (ii) monitor implementation progress against expectations, identify constraints, and define actions to address them; and
  - (iii) ensure compliance with ADB safeguards conditions set out in the grant agreement and financial framework agreement. In particular, EMP implementation will be scrutinized.
66. Three years following grant effectiveness, ADB will field a comprehensive midterm review mission (MRM) to assess performance, identify problems, and reach formal agreement with GoIRA on any needed changes to the scope of work or implementation arrangements to address shortfalls. MOF, MEW, MAIL, and ADB will jointly prepare full terms of reference for the MRM during the second year of implementation. Prior to MRM, MEW and MAIL will each submit a detailed progress report on their respective components, including documentation of safeguards implementation.

## D. Screening And Categorization Of The Project and RSPs

67. **The Project.** The construction of water resources infrastructure under Outputs 1 and 2, and the subsequent operation of this infrastructure, have potentially significant environmental impacts requiring management to achieve acceptable levels of residual impact, thus the Project is assigned ADB environment Category B. Activities within or following from Output 3 do not require IEE as they lack potential for significant impacts.
68. **The RSPs.** Screening checklists were completed for each of the three RSPs selected and designed by the PPTA (see Appendices 1, 2, and 3). Each RSP was assigned to ADB environment category B.

## E. Description of RSP Sharawan

### 1. Proposed Civil Works

69. The proposed RSP Sharawan civil works were selected from the list of civil works requested by beneficiaries in consultation with the SBA (Table 1, Appendix 4, Figure 2, Figure 3). Water access points were added to respond to women's concerns raised during the IEE public consultations and to contribute to the gender equity strategy of the Project.
70. The proposed RSP civil works are:
- *Offtakes* – Upgrade five offtakes on the main canal commanding 1831 ha
  - *Cross-regulators* – Construct seven cross-regulators in the main canal
  - *Flow measurement infrastructure* – Provide a calibrated staff gauge at each upgraded offtake to support water distribution proportional to offtake command areas
  - *Water access points* – Provide eleven domestic water collection and five livestock water access points
71. Beneficiary-requested civil works **not** selected for the proposed RSP are:
- *Offtakes* – at two locations

- *Cross regulators* – at two locations
- *Canal bank protection* – 1600 m at seven locations
- *Canal bank re-sectioning* – 1100 m at three locations
- *Canal re-excavation and lining* – 1000 m at one location
- *Wash structure* – at one location
- *Civil works in secondary canals* – at two locations (out of scope for this MEW-implemented RSP – distribution canal works are the responsibility of MAIL – these will be part of follow-on work however)
- *Bridge* – Requested in the RSP Sharawan IEE public consultation meetings. Non-irrigation works other than water access points were subsequently deemed out of scope of the Project.

72. Total scheme irrigation demand is about 32 m<sup>3</sup>/s (calculated as 13,000 ha at 2.5 ℓ / s-ha), however proposed cross-regulators will be sized to convey the full capacity of the existing main canal (about 40 m<sup>3</sup>/s along its full length) so that they are not damaged in the event of full capacity flows. Proposed offtakes will be sized to admit flow corresponding to the irrigation demand of the offtake's command area.

73. Siting of watering points on the main canal will be determined during preconstruction in consultation with stakeholders.

## **2. Expected Benefits**

74. Expected benefits comprise:

- improved irrigation water supply and management to the 1831 ha commanded by upgraded offtakes and/or new cross-regulators, and provided with flow measurement facilities
- improved access to water for domestic use at eleven locations and livestock watering at five locations
- knock-on benefits including increased agricultural yields, cropped area, improved cropping patterns, culminating in greater agricultural productivity and higher farm incomes.

## **3. Potential Activities**

75. **Construction.** Potential activities include:

- Construction site clearance and preparation including tree removal
- (Re)excavation of foundations, borrow pits, and canals
- Dewatering
- Management and disposal of excavation spoil
- Temporary closure of irrigation canals
- Temporary blockage of foot / vehicle paths / roads
- Excavation of temporary canals
- Sourcing construction materials from existing quarries and/or quarrying of such materials
- Creation and management of on-site stockpiles of construction materials
- Creation and disposal of solid and liquid waste
- Operation and maintenance of vehicles and equipment
- Creation of reinforced concrete structures

- Decommissioning and clean-up of construction sites, including infilling temporary canals and borrow pits

76. **Construction methods.** Most work will be carried out by unskilled local labor using manual tools (shovels, pickaxes, baskets to move earth, etc). Some skilled labor and internal combustion powered machinery and vehicles may be required.

77. **Operation.** Activities will comprise water management and irrigation through the new and upgraded irrigation structures; and the resultant knock-on changes to agriculture.

#### 4. Potentially Impacted Areas

78. Areas potentially affected by construction activities comprise the locations and alignments of temporary paths, roads, canals, and borrow pits; areas of existing quarries from which construction materials are sourced, and/or areas quarried by contractors to obtain such materials; structure construction sites; and adjacent and downstream / down-canal areas.

79. Areas potentially affected by operation-phase activities comprise the secondary and higher order canals and command areas of RSP offtakes; the main canal downstream and immediately upstream of RSP regulators.

### F. Description of RSP Seyaab

#### 1. Proposed Civil Works

80. The proposed RSP Seyaab civil works were selected from the list of civil works requested by beneficiaries in consultation with the SBA (Table 2, Appendix 5, Figure 4, Figure 5). Water access points were added to respond to women's concerns raised during the IEE public consultations and to contribute to the gender equity strategy of the Project.

81. The proposed RSP civil works are:

- *Replacement headwork gates* – Provide two new gates in the headwork
- *Offtakes* – Construct four offtakes on the main canal commanding 98 ha
- *Cross-regulators* – Construct four cross-regulators in the main canal
- *Flow measurement infrastructure* – Provide a calibrated staff gauge at each upgraded offtake to support water distribution proportional to offtake command areas
- *Water access points* – Provide water access points on the main canal – four for domestic water collection and two for livestock watering

82. Beneficiary-requested civil works **not** selected for the proposed RSP are:

- *Canal bank protection* – 400 m at five locations
- *Wash structures* – at 14 locations
- *Bridges and other non-water resources structures* – Requested in the IEE public consultation meetings. Non-irrigation works other than water access points were subsequently deemed out of scope of the Project.

83. Total scheme irrigation demand is about 1.0 m<sup>3</sup>/s (calculated as 400 ha at 2.5 ℓ / s-ha), however proposed cross-regulators will be sized to convey the full capacity of the existing main canal (about 2.0 m<sup>3</sup>/s) so that they are not damaged by full capacity flows.



Proposed offtakes will be sized to admit flow corresponding to the irrigation demand of the offtake's command area.

84. Siting of watering points on the main canal will be determined during preconstruction in consultation with stakeholders.

## 2. Expected Benefits

85. Expected benefits comprise:

- ability to exclude water from the main irrigation canal during flood periods by closing the new gates
- improved irrigation water supply and management to 98 ha commanded by upgraded offtakes and new cross-regulators, and provided with flow measurement facilities
- improved access to water for domestic use at four locations and livestock watering at two locations
- knock-on benefits including increased agricultural yields, cropped area, improved cropping patterns, culminating in greater agricultural productivity and higher farm incomes.

## 3. Activities

86. RSP activities are the same as for RSP Sharawan (see para. 75ff).

## 4. Potentially Affected Areas

87. RSP potentially affected areas are the same as for RSP Sharawan (see para. 78ff).

## G. Description of RSP Laqi

88. The proposed RSP Laqi civil works were selected from the list of civil works requested by beneficiaries in consultation with the SBA (Table 3Table 1, Appendix 6, Figure 6, Figure 7), plus water access points were added to respond to women's concerns raised during the IEE public consultations and to contribute to the gender equity strategy of the Project.

89. The proposed RSP civil works are:

- *Intake works* – Provide head regulator with spill weir and scour sluice in the main channel 100 m downstream of the approach channel
- *Offtakes*– (i) Upgrade one offtake and (ii) provide one combined upgraded offtake in place of two traditional offtakes 160 m apart; on the main canal commanding 72 ha
- *Cross-regulators* – Construct two cross-regulators in the main canal
- *Flow measurement infrastructure* – Provide a calibrated staff gauge at each upgraded offtake to support water distribution proportional to offtake command areas
- *Water access points* – Provision of one livestock and two domestic water access points.

90. Beneficiary-requested civil works **not** selected for the proposed RSP are:

- *Offtakes* – at four locations
- *Cross-regulators* – at four locations
- *Canal bank protection* – 380 m at four locations

- *Wash structures* – at seven locations
- *Bridge* – Requested in the IEE public consultation meetings. Non-irrigation works other than water access points were subsequently deemed out of scope of the Project.

91. Total scheme irrigation demand is about 0.4 m<sup>3</sup>/s (calculated as 163 ha at 2.5 ℓ / s-ha), however the new headwork will admit flows equal to the main canal conveyance capacity of 4.4 m<sup>3</sup>/s. Cross-regulators will be sized to convey this capacity so that they are not damaged by full capacity flows. Proposed offtakes will be sized to admit flow corresponding to the irrigation demand of the offtake's command area.

92. Siting of watering points on the main canal will be determined during preconstruction in consultation with stakeholders.

### **1. Expected Benefits**

93. Expected benefits comprise: ability to exclude water from the main irrigation canal during flood periods at new headwork; improved irrigation water supply and management to 72 ha commanded by upgraded offtakes and new cross-regulators, and provided with flow measurement facilities; and improved access to water for domestic use (at two locations) and livestock watering (at one location). Expected knock-on benefits include increased agricultural yields, cropped area, improved cropping patterns, culminating in greater agricultural productivity and higher farm incomes.

### **2. Activities**

94. RSP activities are the same as for RSP Sharawan (see para. 75ff).

### **3. Potentially Affected Areas**

95. RSP potentially affected areas are the same as for RSP Sharawan (see para. 78ff).

## **IV. DESCRIPTION OF THE ENVIRONMENT**

### **A. Basin / Regional Background**

#### **1. Scope of Description**

96. This section presents a selective description of the basin and region to provide some context for the local environments of three RSPs that are the subject of this IEE. A full description of all aspects the basin / regional baseline environment is beyond the scope of this IEE study, particularly given the limited data available for Afghanistan and this area.

#### **2. Location and Size**

97. The Amu Darya (including its catchments and reaches outside Afghanistan) is the largest river in Central Asia, with a length over 2,400 km, a basin of more than 530,000 km<sup>2</sup> in Afghanistan, Iran, and the four Central Asian Republics of Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. It has annual flows of about 75 billion cubic meters (Bm<sup>3</sup>), of which 13 to 18 Bm<sup>3</sup> originate in Afghanistan and most of the rest in Tajikistan.<sup>14</sup>

<sup>14</sup> Ahmad, Masood, and Mahwash Masiq. 2004. Water Resource Development in Northern Afghanistan and Its

98. The water resources of the basin are key to economic production, ecological functioning, and social well-being in northern Afghanistan and the basin areas of the other riparians. Of note is the cumulative impact of irrigation withdrawals from the Amu Darya and the Syr Darya, which has transformed the Aral Sea, once the fourth largest lake in the world, into a desert on the desiccated lake bottom (called the Aralkum) and a remnant Small Aral Sea.<sup>15</sup>
99. The source and primary tributary of the river between the Kokcha and Vakhsh confluences is the Panj. The Panj originates at the Vakjdjir Pass glacier. Its catchment area comprises 107,000 km<sup>2</sup> of mountainous terrain that extends into a lowland flood plain of 6500 km<sup>2</sup>. It is approximately 1000 km long above its confluence with the Vakhsh. It has reliable flows round the year, which carry a high sediment load, particularly in the spring and early summer.
100. The Panj-Amu basin within Afghanistan has three tributaries divided into six sub-basins: the Upper and Lower Kunduz (area 34,000 km<sup>2</sup>), Taloqan (12,000 km<sup>2</sup>), Kokcha (22,000 km<sup>2</sup>), and Upper and Lower Panj (28,000 km<sup>2</sup>, Figure 8).<sup>16</sup> The Upper and Lower Kunduz sub-basins are divided at the confluence of the Surkhab and Andarab. The Lower Kunduz sub-basin includes the Shortepa watershed, which could receive water from the Amu Darya River if special provisions were made. The Upper and Lower Panj sub-basins are divided at the confluence of the Shiwa and Panj Rivers. The altitude in the basin varies from 7485m at Noshaq in the Wakhan corridor to <200 m in the Shortepa watershed.<sup>17</sup>
101. The area of the basin commanded by irrigation schemes is around 424,000ha. Rainfed agriculture occupies about 13,000 km<sup>2</sup>, representing almost 30 per cent of the national rainfed area.<sup>18</sup>
102. Upstream in Tajikistan, Lake Sarez, a reservoir 17 km<sup>3</sup> in volume behind a very large natural rock fall dam, poses a risk of catastrophic flash flooding along the Panj in the event of dam failure; the probability of such an event is however deemed to be extremely low. Risk mitigation options are limited; a monitoring and early flood warning system has been put in place.

### 3. Ecological Resources

103. **Protected areas.** There are no protected areas in or near the three subprojects.
104. **Terrestrial habitats and vegetation.** The main habitat in the three subprojects is agricultural fields and settlement areas. Trees are found along canals, typically willow and some fruit trees, and within the walls of household compounds.

---

Implications for Amu Darya Basin. World Bank Working Paper 36.

<http://documents.worldbank.org/curated/en/2004/06/4975168/water-resource-development-northern-afghanistan-implications-amu-darya-basin> . P. 37.

<sup>15</sup> P. Droz and L. Spacic-Gril. 2002. Lake Sarez Risk Mitigation Project: A Global Risk Analysis. International Association of Hydraulic Engineering and Research (IAHR), St Petersburg. <http://www.gruner.ch/en/pdf/lake-sarez-risk-mitigation-project-global-risk-analysis>

<sup>16</sup> Earlier work divided the basin up differently – into the Panj, Kokcha, Ab-i Rustaq, Khanabad, and Kunduz, with somewhat different sub-basin boundaries (eg Fevre, R., & Kamal, G. M. 2004. *Watershed Atlas of Afghanistan - Part V. First Edition - Working Document for Planners*. Retrieved from [http://aizon.org/watershed\\_atlas.htm](http://aizon.org/watershed_atlas.htm) )

<sup>17</sup> Landell-Mills. (2013). Panj-Amu river basin profile. Afghanistan Water Resources Development (AWARD) Technical Assistance Project – Technical and Implementation Support Consultancy (TISC) Grant No. TF093637-AF / Contract No. MEW/957/QBS.

<sup>18</sup> Landell-Mills (2013).

105. **Wetland habitats and vegetation.** The subproject areas have efficient drainage and, other than the canals themselves, there are no wetlands.
106. **Terrestrial and aquatic wildlife.** Local people report the larger mammals jackal (Eurasian Golden Jackal *Canis aureus*), fox (either red fox *Vulpes vulpes* or Blanford's fox *Vulpes cana*), tiger (Caspian tiger *Panthera tigris virgate*, last confirmed in the wild, lower Amu Darya 1968, now extinct), and polecat (*Vormela peregusna*). Locally reported birds include partridge (Chukar Partridge *Alectoris chukar*), hoopoe (*Upupa epops*), eagles (*Aquila* spp.), doves (*Streptopelia* spp.), and sparrows (*Passer* spp.). The aquatic environment of the irrigation canals in the three subprojects is reported to be biologically depauperate (few/no fish, few/no amphibians etc).
107. **River water quality.** While the quality of water in the rivers is believed to be good, a water quality assessment is required in order to provide qualitative data. However, due to the limited potential impact from the project, no monitoring is planned for water (and soil) quality, and as such no baseline survey has been undertaken. The monitoring of water quality is a planned task of the river basin agency and sub-basin agencies however. A separate ADB TA project (TA-9095 REG: Strengthening Integrated Water Resources Management in Mountainous River Basins) will likely provide assistance to the Panj-Amu RBA in undertaking a water quality baseline for the river environment, and build its capacity for follow-up water quality monitoring as part of its institutional mandate.

#### 4. Environmental Setting in Historical Context<sup>19</sup>

##### a. Regional Paleoclimate

108. The paleoclimate of Central Asia is believed to have been characterized by progressive aridization with occasional minor fluctuations to moister phases, from the middle Pleistocene (781,000 to 126,000 years before present, ybp) up to the present. One hypothesized reconstruction of Central Asian Holocene climate (11,700 ybp to the present) has a first wet transgression occurring during 5000-3000 BCE, during which lacustrine landscapes and human niches occurred in areas now occupied by deserts and takyr formations (shallow depressed areas with heavy clay soils that are submerged after seasonal rains), followed by moister transgressions of lesser dimension between 1400-1000 BCE, 600-250 BCE, 900-1200 CE and 1600-1800 CE.<sup>20</sup>

##### b. Regional Prehistory

109. The Panj-Amu basin has been inhabited and modified by human activities for many millennia. Extremely rich concentrations of Mesolithic and Neolithic settlements dating as far back as 10,000 BCE have been found south of the Amu Darya in the Turkistan plain. This indicates that the Neolithic revolution took place in northern Afghanistan about 9000 years ago, indicating that the area may have been one of the earliest centers for the domestication of plants and animals. Mounds that seem artificial and alien to the surrounding flat area are the remnants of monumental Neolithic palaces

---

<sup>19</sup> Earlier versions of this section appeared in (i) Bennett (2009) *Initial environmental evaluation of the Water Resources Development Investment Project*. Ministry of Energy and Water, Afghanistan; and (ii) Bennett (2013) *Initial environmental evaluation of the Water Resources Development Investment Program Tranche 2 Lower Kokcha Irrigation Project*. Ministry of Energy and Water, Afghanistan.

<sup>20</sup> Sala, Renato. 2003. *Historical Survey of Irrigation Practices In West Central Asia*. Almaty, Kazakhstan: Laboratory of Geo-archaeology, Centre of Geologo-Geographical Research, Ministry of Education and Science.

<http://lgakz.org/Texts/LiveTexts/CAsialrrigTextEn.doc>

and complex circular temples.<sup>21</sup> Lapis lazuli mining in the narrow Upper Koksha canyon from before 3000 BCE was the main source of lapis to ancient Sumer and Egypt, and likely what attracted Harappans in ~2000 BCE to Shortugai in modern-day Yangi Qala district, Takhar province, the settlement furthest from Harappa itself.<sup>2223</sup>

110. In the second half of the third millennium BCE, a new type of social organization, suggestive of a form of large-scale colonization involving mastery of advanced techniques of large-scale irrigation, appeared in settlements in northern Afghanistan and Turkmenistan, which archaeologists have named the Bactria-Margiana Archaeological Complex (BMAC).<sup>24</sup>

### c. Archaeology of Irrigation Canals

111. Archaeological research claims a very early date for some of the irrigation canals in the region. Based on the age of artifacts recovered from settlements along the canals, dates as early as 2500-1500 BCE have been attached to Archi Main Canal and Archi Nahre Khona / Old Canal in the Lower Kokcha Irrigation Project, and 1500-500 BCE to the Rud-i-Sharawan canal, the main canal of RSP Sharawan, one of the RSPs assessed in this IEE (Figure 9).<sup>25</sup>

### d. Regional History

112. The history of the region before the coming of Islam (600-800s CE) is demarcated by the Persian Achaemenids (6th-4th century BCE), Alexander and the

<sup>21</sup> P. 81: Favre, Raphy, and Golam Monowar Kamal. 2004. Watershed Atlas of Afghanistan - First Edition Working Document for Planners. <http://aizon.org/ws%20landII.htm>.

<sup>22</sup> Bancroft, Peter. 1984. Gem and Crystal Treasures. Fallbrook, California, USA: Western Enterprises/Mineralogical Record. [http://www.palagems.com/lapis\\_lazuli\\_bancroft.htm](http://www.palagems.com/lapis_lazuli_bancroft.htm)

<sup>23</sup> As a result, excavation anywhere in the region poses a risk of disturbing physical cultural resources, specifically archaeological materials. ADB guidance on environmental safeguards for physical cultural resources are documented in Section VII Physical Cultural Resources (pp. 66-71), ADB (2012) *Environment Safeguards, A Good Practice Sourcebook—Draft Working Document*. Retrieved from <http://www.adb.org/sites/default/files/environment-safeguards-good-practices-sourcebook-draft.pdf>

<sup>24</sup> W. Vogelsang. 2008. The Afghans. Oxford, UK: Wiley-Blackwell.

<sup>25</sup> Francfort, Henri-Paul, and Olivier Lecomte. 2002. "Irrigation Et Société En Asie Centrale Des Origines à L'époque Achéménide." *Annales. Histoire, Sciences Sociales* 3: 625–663. doi:10.3406/ahess.2002.280068.

[http://www.persee.fr/web/revues/home/prescript/article/ahess\\_0395-2649\\_2002\\_num\\_57\\_3\\_280068](http://www.persee.fr/web/revues/home/prescript/article/ahess_0395-2649_2002_num_57_3_280068)

Gardin, Jean-Claude. 1980. "L'archéologie Du Paysage Bactrien." In *Comptes-rendus Des Séances De l'Académie Des Inscriptions Et Belles-Lettres*, No 3:480–501. 124e année.

[http://www.persee.fr/web/revues/home/prescript/article/crai\\_0065-0536\\_1980\\_num\\_124\\_3\\_13750](http://www.persee.fr/web/revues/home/prescript/article/crai_0065-0536_1980_num_124_3_13750)

Gardin, Jean-Claude, and Pierre Gentelle. 1976. "Irrigation Et Peuplement Dans La Plaine d'Ai Khanoum, De L'époque Achéménide à L'époque Musulmane." *Bulletin De l'Ecole Française d'Extrême-Orient* 63: 59–110.

doi:10.3406/befeo.1976.3887. [http://www.persee.fr/web/revues/home/prescript/article/befeo\\_0336-1519\\_1976\\_num\\_63\\_1\\_3887](http://www.persee.fr/web/revues/home/prescript/article/befeo_0336-1519_1976_num_63_1_3887)

———. 1979. "L'exploitation Du Sol En Bactriane Antique." *Bulletin De l'Ecole Française d'Extrême-Orient* 66 (1-29). doi:10.3406/befeo.1979.4008. [http://www.persee.fr/web/revues/home/prescript/article/befeo\\_0336-1519\\_1979\\_num\\_66\\_1\\_4008](http://www.persee.fr/web/revues/home/prescript/article/befeo_0336-1519_1979_num_66_1_4008)

Hiebert, Frederik T. 1999. "B. Lyonnet (1997) Prospections Archéologiques En Bactriane Orientale (1974-1978), Vol. 2. Céramique Et Peuplement Du Chalcolithic a La Conquete Arabe Et J.-C. Gardin (1998) Prospections Archéologiques En Bactriane Orientale (1974-1978), Vol. 3. Descriptions Des Sites Et Notes De Synthese \*book Review+." *Paléorient* 25 (1): 174 – 177.

Lyonnet, B. 1997. *Prospections Archéologiques En Bactriane Orientale (1974-1978), Vol. 2. Céramique Et Peuplement Du Chalcolithic a La Conquete Arabe*. Paris: Editions Recherche sur les Civilisations.

P. Gentelle, C. Marinucci, F.O. Vallino, and J. Trichet. 1989. *Prospections Archéologiques En Bactriane Orientale (1974-1978), Vol. 1, Données Paléogéographiques Et Fondements De L'irrigation*. Paris: Diffusion De Boccard.

Viollet, Pierre-Louis. 2004. *L'hydraulique Dans Les Civilisations Anciennes, 5000 Ans D'histoire*. Paris: Presse des Ponts. [https://books.google.co.uk/books/about/L\\_hydraulique\\_dans\\_les\\_civilisations\\_anc.html?id=i5xTES80ExIC](https://books.google.co.uk/books/about/L_hydraulique_dans_les_civilisations_anc.html?id=i5xTES80ExIC)

Greeks (4th century BCE), Asoka and Buddhism (3rd century BCE), Kanishka and the Kushans (1st century CE), the Persian Sasanians (100-600s CE), and the Iranian Huns (300-800s CE). Islamic civilization initially flourished under the Ghaznavids (900-1100s) and the Ghurids (1100-1200s) but this era ended in catastrophe with the Mongol invasion (1200s). The opening of the new maritime trade route between Europe and the East Indies in the 1500s sent Afghanistan and all other areas along the traditional overland silk route into economic and cultural decline.<sup>26</sup> During the latter half of the 1700s, Ahmad Shah Durrani liberated the area between the Hindu Kush and the Amu Darya from Persian and Indian influence, thereby creating modern Afghanistan

113. Modern water management was introduced to northern Afghanistan in the mid-20<sup>th</sup> century. Under the monarchy (1919-1973), irrigation management was significantly improved, individuals were allocated water rights, the Law on Irrigation (Qanun-i-Abyari) was published, and provincial Departments of Irrigation (Riyasat-i-Abyari) were established.<sup>27</sup>
114. During the two decades of war from 1979 to 2001, irrigation systems fell into disrepair, and traditional community-based water management declined. Since then the government, with support of the donor community, has begun to rehabilitate and upgrade irrigation systems, and to restore community-based water management.

## **5. Climate and Weather**

### **a. Climate Classification**

115. The Köppen climate classification of the basin is predominantly BSk cold steppe (Kabul, Denver USA), with smaller areas of BWk cold desert (Isfahan Iran), CSa hot summer Mediterranean (Dushanbe Tajikistan), and DSa high altitude hot summer continental (only occurs adjacent to CSa; Figure 10). BSk climate is characterized by a cold winter (November to April) with significant snowfall. Spring (April to mid-June) is wet and unsettled with cool days and frosty nights. Summer (mid-June to August) is clear and dry, with modest precipitation in brief downpours. Autumn (September to October) is cloudy and wet.

### **b. Upper Catchment**

116. Most Panj-Amu basin flow originates as snowmelt in upper high-altitude catchments. Historical direct hydro-meteorological measurements for the upper catchments are unavailable. Snow-cover recession can readily be inferred from satellite imagery, but it is not directly proportional to river discharge which also requires knowledge of snow-pack depth or equivalent rainfall depth, and of rates of snowmelt percolation (which is substantial) into local ground water storage in scree, alluvial terraces. In addition, local physiographic effects have a strong influence upon microclimatic variation in mountainous areas. Therefore, generation of representative upper basin hydrometeorology data requires instrumentation and analysis sufficient to cope with rain shadow, barrier effects, snowdrift, summit exposure, exposure, and macro-aerodynamic turbulence.

---

<sup>26</sup> "Afghanistan v. Languages." 2013. In *Encyclopaedia Iranica*. New York: Center for Iranian Studies, Columbia University. <http://www.iranicaonline.org/articles/afghanistan-v-languages>

<sup>27</sup> SMEC. 2008. Balkh River Basin Management Plan. Report of Balkh River Integrated Water Resources Management Project (ADB TA JFPR 9060-AFG). P. 25.



### c. Meteorology Data, Averages, Trends

117. **Kulyab weather data.** The longest continuous and highest-quality weather record for the lower (or possibly entire) Panj-Amu basin is said to be the 51-year record from the meteorological station at Kulyab, Tajikistan, for the years 1940-1990. Kulyab is located on the relatively low-lying flood plain of the Yakhsu and Kulyab rivers at 500 m above sea level.
118. **Precipitation.** In the Kalyab record, average water year (October to September) precipitation for the period of record was 564 mm. Annual totals ranged from 300 mm (in 1946) to 913 mm (in 1968). A single long winter wet season occurred from October to May. Average monthly precipitation climbed steadily through the autumn and winter months to a maximum of 130 mm in March, and then decreased rapidly in April/May. Summer, from June to September, was typically dry but not always (as the heavy monsoon rainfall and serious flooding of July 1999 illustrated). Large inter-annual variations in monthly average precipitation occurred. For instance, March precipitation – on average the wettest month – varied from 35 mm (in 1947) to 280 mm (in 1987). There is no evidence of any secular trend in precipitation. On the contrary, the first five and last 40 years of record were wetter than the intervening 1945-1950 period.
119. **Temperatures.** In the Kalyab record, average monthly temperatures ranged between -6 C and 33 C. Maximum daily temperatures ranged between 39 C and 46 C. No long-term trend is evident in the temperature record.
120. **Faizabad, Badakhshan, weather record.** The meteorological station for northeastern Afghanistan is in Faizabad, Badakhshan. In this data up to 2012, typical daily high temperatures in summer were ~30°C (44°C was recorded in Sep 2007), typical lows in winter were ~-4°C, and annual average temperature was ~14°C. Mean annual precipitation as snow and rain was 500 mm, mostly during January-May when monthly means ranged from 50 to 100 mm; June to October was relatively dry. Almost all rainfall occurred during the Oct–May period, and was highly variable from year-to-year, month-to-month, and day-to-day. Mean annual humidity varied from 25 to 88 percent, highest in Jan-Apr and lowest in July. Prevailing winds, normally light to moderate at 0-20 m/s, were easterly in autumn-winter and westerly in spring-summer. Higher wind speeds occurred in dust and rain storms.<sup>28</sup> Annual evapo-transpiration greatly exceeded annual rainfall, by a factor of 5 to 15.
121. **Recent droughts.** Periods of large-scale, multi-year drought are characteristic of central Asia. Recent drought years recorded for northern Afghanistan are 1997-2004 (1998-2002 in Southwest Asia more broadly), 2008, and 2010.<sup>29</sup> It has been suggested that Central Asian droughts are correlated with large scale climate indices related to the El Niño-Southern Oscillation cycle (ENSO).<sup>30</sup> In Central Asia, wetter than normal conditions are associated with the ENSO warm phase (El Niño); drier conditions are associated with the cold phase (La Niña).

<sup>28</sup> p. 1-8, Fichtner (2010) Environmental Impact Assessment, Lower Kokcha Irrigation and Hydropower Project.

<sup>29</sup> Beekma, Jelle, and Joel Fiddes. 2011. *Floods and Droughts: The Afghan Water Paradox*. Afghanistan Human Development Report. Kabul: Centre for Policy and Human Development.

<sup>30</sup> Dai, Aiguo, Kevin E. Trenberth, and Taotao Qian. 2004. "A Global Dataset of Palmer Drought Severity Index for 1870–2002: Relationship with Soil Moisture and Effects of Surface Warming." *Journal of Hydrometeorology* 5: 1117–1130. [http://www.cgd.ucar.edu/cas/adai/papers/Dai\\_pdsi\\_paper.pdf](http://www.cgd.ucar.edu/cas/adai/papers/Dai_pdsi_paper.pdf).

## **6. Social and Economic Conditions**

### **a. Population**

122. In 2011, the total basin population was estimated to be 3.90 million (935,600 in Kunduz province, 917,700 in Takhar province, 848,500 in Baghlan province, 186,300 in the Panj-Amu basin part of Bamyan province, 889,700 in Badakhshan province, 7,000 in the Panj-Amu basin part of Samangan, and 95,000 in the Shortepa watershed). The main ethnic groups in the North (the area of the Panj-Amu basin) are the Tajik, Uzbek, Turcoman, Pashtun and some Kyrgyz. The Tajik are the second largest ethnic group in Afghanistan and in the majority in the Northern provinces.<sup>31</sup>

### **b. Land Tenure and Rural Livelihoods**

123. A description of the national situation with respect to land tenure and its implications for rural livelihoods is provided in the following paragraphs, in the absence of observations specific to the studied area.<sup>32</sup>

124. In Afghanistan, agrarian land relations have feudal origins and remain complex and inequitable, as in Pakistan and India. A few large landlords likely still own around 40 per cent of farmland as was the case in the 1981. Most of the cropped area is farmed by smallholders, but with great variations in farm size by region. Rent-seeking absentee landlordism is common in many areas and can be a source of conflict within local populations.

125. Around one-quarter of the rural population is entirely landless, surviving on off-farm piecework, farm laboring, sharecropping, or some combination thereof. In some areas over half of all households are entirely landless. Farm laborers generally receive one-fifth of the crop as payment and sharecroppers, who tend to have more skills, up to one-third.

126. A large number of rural families are homeless as well as landless, and must depend upon landlords or relatives for shelter from one generation to the next. The men from these families form a significant body of mobile farm labor, going from landlord to landlord every year or two with their only capital asset, a small herd of karakul sheep. Although possibly numbering in the hundreds of thousands, these poorest of the poor are not considered a permanent part of (any) community and rarely appear in survey statistics.

127. Indebtedness is very high in the rural population with up to 92 per cent and 57 per cent of sample populations in 2002 borrowing respectively cash and wheat. Many landowners have their land under a form of mortgage that is to the full advantage of the creditor. These loans are typically taken up out of desperation, to buy food or cover health or bride price costs, not to invest in economically productive activities. Outright land sales by smaller farmers typically soar during droughts and other difficult times. Land purchases tend to be by those who already own land, suggesting continuing consolidation of holdings.

---

<sup>31</sup> Landell-Mills. (2013).

<sup>32</sup> The text in this section is a lightly edited version of pp. 4-6 of the excellent paper: L. A. Wily. 2004 (April). Putting Rural Land Registration in Perspective: The Afghanistan Case. Paper presented to Symposium on Land Administration in Post-Conflict Areas, hosted by the International Federation of Surveyors, 29-30 April, 2004, United Nations, Geneva. [http://www.fig.net/commission7/geneva\\_2004/papers/lapca\\_06\\_alden\\_wily.pdf](http://www.fig.net/commission7/geneva_2004/papers/lapca_06_alden_wily.pdf)



128. Those who lose their land find it difficult to re-acquire land and tend to end up in cities as unskilled domestic or market labor. For the better-off as well as the poor, periodic outmigration in search of work within and beyond Afghanistan (especially to Iran and Pakistan) is a well-established routine dating back to the 1960s, and may inflate or confuse figures of refugees and internally displaced persons (IDPs).
129. Rural society is intensely stratified, and its socio-cultural mores remain largely effective in perpetuating the status quo. Large and powerful socio-cultural barriers exist between those referred to as landlords, small farmers, and the landless (neither the rich nor laborers are referred to as 'farmers'), and especially between those with and without land. Farming, an artisan skill and the preserve of tenants and sharecroppers, is considered to be beyond the homeless and landless mobile laborer, who typically perceives landownership as not only financially impossible but as getting above his station or 'not permitted'. Very few of these mobile laborers were likely among the classified landless who benefited from the (short-lived) revolutionary land redistributions of 1978-1984.
130. Women are customarily barred from landholding despite religious law recognizing limited female land inheritance rights. This restriction affects the significant proportion of the population living in households that are woman-headed, either de facto due to male labor out-migration or by widows.

#### c. Rural Housing

131. People in the project area live in the traditional Afghan house or part of a shared house, occupied by an extended family. These conditions are quite uniform. Houses are made of traditional material and therefore it can be said that the age of the premises is relatively young.<sup>33</sup>

#### d. Public Health

132. **Diarrhoeal and other water-borne disease.** Water-borne diseases are highly prevalent due to unsafe water and unsanitary conditions. While poor water quality is emphasized as a cause of water-borne disease alone, the impact of inadequate water quantity on personal and household hygiene may be as or more important.<sup>34</sup>
133. **Malaria.** In 2002, most of Afghanistan's estimated 3 million malaria cases per year occurred in Kunduz Province. In late 2003, Takhar province had a 31 per cent incidence of *Plasmodium falciparum* malaria. Between 2001 and 2005, *P. falciparum* and *P. vivax* malaria reemerged rapidly in Kunduz, with cases peaking during 2002 and then declining independently of each other. Control campaigns were successful against *P. falciparum* malaria transmitted by the freshwater breeding mosquito *Anopheles superpictus*, but as of 2007, *P. vivax* remained highly endemic in Kunduz, transmitted by the rice-field breeders *A. pulcherrimus* and *A. hyrcanus*. Field studies in northern Afghanistan found anthropogenically-induced increases in ricefield *vivax* malaria, indicating that control strategies in rice-growing areas, including large-scale larval mosquito eradication, needed to continue.<sup>35</sup> By 2011, anti-malarial control interventions

<sup>33</sup> SNC. 2013. *Lower Kokcha Irrigation Project Feasibility Study*.

<sup>34</sup> Huttly, S.R.A., S.S. Morris, and V. Pisani. 1997. "Prevention of Diarrhoea in Young Children in Developing Countries." *Bulletin of the World Health Organization* 75(2):163-174.  
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2486931/pdf/bullwho00393-0073.pdf>

<sup>35</sup> Faulde, Michael K., Ralf Hoffmann, Khair M. Fazilat, and Achim Hoerauf. 2007. "Malaria Reemergence in Northern Afghanistan." *Emerging Infectious Diseases* 13. <http://www.cdc.gov/eid/content/13/9/1402.htm>.

had reduced the confirmed malaria case rate in Kunduz and Takhar provinces to <1 per 1000 population.<sup>36</sup>

134. **Cutaneous leishmaniasis.** Endemic to northern Afghanistan and caused by sand flies, outbreaks can occur when individuals without immunity to the disease, such as migrant agricultural or construction workers, move to an endemic area to engage in activities that expose them to sand flies.

**e. Domestic Water Supply**

135. **Sources and availability.** Information on domestic water supply sources and availability is very limited. Studies for the Lower Kokcha Irrigation Project state that the main sources of domestic water in the area are river and canal water, and hand-pumped ground water. Some villagers travel 4 to 10 km to collect water, and in areas where domestic water supply is scarce, villagers have been observed collecting water from puddles during the rainy season.

136. **Links between domestic water supply and irrigation.** Domestic water supply and irrigation water distribution can be linked in several ways. Some communities use irrigation canal water for their domestic supply. Others use ground water, and in some cases ground water quantity and quality can be affected by irrigation water quantity and quality. Thus irrigation system management can both directly and indirectly affect the domestic water supplies of individuals, families, and communities.

137. **Domestic water supply behaviors.** A study to understand unexpected behaviors around access to water supplies was commissioned by the NGO DACAAR, which installed more than 24,000 wells to provide safe drinking water primarily to rural communities in south, east, and west Afghanistan between 1990 and the early 2000s. Though DACAAR's work area did not include northern Afghanistan, the study findings indicate the types of issues that could be in play in the LKIP area. The remainder of this section consists of an extended paraphrase from this study.<sup>37</sup>

138. **Owned space and water.** Land ownership has a substantial impact on how water supply is perceived and used. Three forms of village land ownership were identified: public, private and tribe or clan. Tribe or clan owned village land is considered to be the joint property of a group of families from one tribe or clan. The families sometimes compete in claiming temporary land ownership, and newly installed tubewells can play a part in this process. There is less overt competition between families for control of private and public land but a family can enhance their relative social status by providing water to other families from their own private well, or by paying for the maintenance of a public well.

139. **Water patronage.** A practice common to all three forms of land ownership is that the wealthy and the landowners provide water or the means to obtain water to the poor. They regard this as almsgiving that will be rewarded either in this life or later, 'at Gods door'. There is also an expectation of reciprocity. Something given now will be repaid later by a similar item or in the form of loyalty or service.

---

<sup>36</sup> WHO. 2015. *Afghanistan Country Profile, World Malaria Report.*

[http://apps.who.int/iris/bitstream/10665/200018/1/9789241565158\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/200018/1/9789241565158_eng.pdf?ua=1)

<sup>37</sup> Klijn, Floortje. 2002. *Water Supply and Water Collection Patterns in Rural Afghanistan - An Anthropological Study.* Kabul: DACAAR. <http://reliefweb.int/sites/reliefweb.int/files/resources/835738AA2919E2DBC1256BE50055F5D7-dacaar-afg-21jun.pdf>

140. **Gendered space and water.** Village water collection patterns are related to purdah, which in turn is related to living standard. Following purdah is an ideal. Wealthy families tend to send their men to collect water when necessary since that is less shameful than sending their women, given the fact that these families are able to practice purdah. Within poorer families who are unable to practice purdah, however, the women generally collect water as it is considered shameful for men to do so. What is considered shameful for men and women depends on their family social and economic status. Water sources, routes to water sources, and times at the source can all be gender segregated, governed by shared understandings of when and where men and woman may collect water. A change in water sources very often disrupts the balance, since it forces men and women to negotiate new patterns of water collection. New water sources can be assigned as 'women's places' if they meet the requirements for public seclusion.
141. **External influence and interventions.** Exposure to life outside rural Afghanistan as an internally displaced person (IDP) or refugee and the trend in some areas to follow purdah more strictly can affect village water collection patterns and well site preferences. Another influence has been aid agencies' involvement of a broader section of the community in discussions of well siting. Formerly these discussions were dominated by richer households, who have the resources to follow stricter purdah and in turn a preference for wells on private land. Now, the issue of whether a well site is appropriate for women to use has become something that is discussed and debated.
142. **Water supply and drought.** The drought in Afghanistan during the 1999-2002 had both direct and indirect impacts on drinking water supply. Wells ran dry and community-based maintenance was also affected. Traditionally wealthy families paid the maintenance costs of public wells; but they became less inclined to do so during the drought when funds were tight. Another factor is that wealthy families increasingly have their own private wells, which insulates them from the impact of public well breakdowns and reduces their motivation to pay public well maintenance costs.

## B. Description of Environment – RSP Sharawan

### 1. Location and Size of Existing Irrigation Scheme

143. The existing Sharawan irrigation scheme is located in Taloqan, Baharak, and Khwaja Ghor districts of Takhar province. It irrigates about 13,000 ha.<sup>39</sup> The main canal, the Rud-i-Sharawan, is 82 km long and has 62 secondary canals (Figure 3). The scheme is described further below (para. 177ff).

### 2. Physical Environment

144. **Air quality and noise.** Air quality is generally good and noise is low, typical of rural areas (all construction sites are in agriculture fields in rural areas). Temporary large increases in dust can occur during dust storms and large livestock migrations.
145. **Topography and soils.** The command area is a fairly level, well-drained agricultural zone with some interspersed small low hills bordering the main irrigation canal. Cultivated soils are typical of an alluvial floodplain.

<sup>39</sup> According to PARBP's 2016 GPS survey. The scheme's nominal command area as recorded with MEW and its business units is 20,000 ha.

146. **Rivers and water bodies.** The waterways of the subproject area are the Rud-i-Sharawan main canal and its secondary branch and higher-order canals (see para. 177ff). The tail area of the Rud-i-Sharawan, just above where it falls into the Taloqan River, in a normally water year is dry from mid-May to mid-Oct (Jawzan to Mizan). There are no natural or man-made lentic water bodies in the area, other than community cisterns.
147. **Groundwater.** In the middle and tail areas, water table depth has prevented well development. In the head area, wells are found in about half the villages.

### 3. **Social and Economic Conditions**<sup>40</sup>

#### a. **Takhar Province Agriculture**

148. Agriculture is the mainstay of the people in the subproject area, representing the major source of income for more than half the households in the province. The most important field crops grown in Takhar province are wheat, maize, barley, rice, and flax. The most common garden plants include fruit and nut trees (53 per cent), grapes (12 per cent), vegetables, potatoes, beans and alfalfa, and clover or other fodder. Wheat (12 per cent) is also frequently grown in garden plots. Nearly nine in ten households with access to fertilizer use it on field crops (86 per cent) and to a much lesser degree on garden plots (10 per cent); a very small proportion of households use fertilizer on both (5 per cent).

#### b. **Taloqan District, Takhar Province**

149. **Overview.** Taloqan district of Takhar Province is the district administrative centre and trading and transit hub with six police districts (nahias), a total urban area of 10,744 ha, and 28,691 dwellings, nearly half of which are concentrated in police district six. Notwithstanding the presence of Taloqan town, district land use is still dominated by agriculture (55 per cent). The Khanabad River flows through Taloqan, and accounts for 7 per cent of district land use.
150. **Population and ethnicity.** Estimated district population is 155,400 (79,500 male and 79,500 female). This is based on 1979 census data, the most recent, and as such must be treated cautiously. Taloqan district administration currently estimates its population at 219,000. The ethnic distribution of the population is 60 per cent Tajik, 37 per cent Uzbek, 10 per cent Baluch, 1 per cent Hazara and 1 per cent Bayat. Conflicts between groups have not been reported. According to the project survey, the majority of the population in villages in the vicinity of the canal are Uzbek (and speak Dari as the first language).
151. **Villages located on the canal.** Villages along the canal include: Majar Qeshlaq, Taloqan town, Qara Parchaw, Shaqhal Tepa, Qaria Jariq, Qaria Haji Noor Mohammad, Qaria Haji Nawroz, Haji Khosh Mohammad, Abdal, Salakh Qishlaq, Takhta Tubary, Charm Gary, Jala Nayaq, Sasmaq, Panjshiree Qishlaq, Qaria Zoobin, and Haji Rahman Qol and Haji Ghulam Sakhi.
152. **Roads.** Taloqan district is 100 per cent accessible by road year round, with 45 km paved road, 100 km gravel road, and over 150 km unimproved road. The main road connecting Taloqan town to Baharak and Khwaja Ghar is paved and allows easy transportation of agricultural inputs, produce, and other movements crucial to the

---

<sup>40</sup> The source of Information in this section is the

livelihoods of people in the area. A few road sections are narrow and lack drainage systems which sometimes causes problems in winter.

153. **Education facilities.** Taloqan town district has good coverage of educational facilities compared to other districts, due to its relative ease of access, proximity to larger centres, and the involvement of MoE, UNICEF, and other agencies. The district has 22 elementary schools (14 boys, eight girls), ten secondary schools (five boys, five girls), and eight high schools (four boys and four girls).
154. **Subproject area student population.** An estimated 1675 students live in the subproject area, of which 475 (28 per cent) are female (Abdullah Khan, head Taloqan irrigation department, pers.comm.)
155. **Health facilities.** District health facility coverage is very good compared to other similarly remote areas. The district has a hospital in Taloqan town, five comprehensive health centres, and 18 district clinics.
156. **Income and food security.** In Taloqan district, estimated average income is slightly below the national average at about AFN101,500, however the uncertainty of this value, as in any income figure, is high. An estimated 29 per cent of district residents are considered to be food insecure, and an estimated 3 per cent are considered severely food insecure, based on a World Food Programme (WFP) analysis of ALCS data of 2013-14.

#### c. Baharak District, Takhar Province

157. **Overview.** Baharak district, located 20 km northwest of Taluqan town, has an estimated area of 231 km<sup>2</sup>.
158. **Population and ethnicity.** The estimated 2015 district population was 31,100 (15,900 male and 15,200 female) in 371 households. This is based on 1979 census data, the most recent, and as such must be treated cautiously. Irrigation directly benefits 26 per cent of district population. The ethnic composition is Uzbek 83 per cent, Pashtun 10 per cent, Tajik 5 per cent and Hazara 2 per cent. Conflicts between groups have not been reported. According to the project survey, the majority of the population in villages in the vicinity of the canal are Uzbek (and speak Dari as the first language).
159. **Villages located on the canal.** Villages along the canal include: Arabha, Badakhshi, Aqmasjid, Sayed Nooruldin, Haji Ghani, Anwar Eshan, Haji Mohammad, Chapar Qishlaq, Arbab Sarwar, Gilam Qishlaq, Abdul Azimbick, Poshta Mazar, Qurban Eshan, Haji Sayed Murad, Zard Kamar, Gullali, Haji Satar, Kotarma, Haji Pahlawan, Haji dad mohammad, Turuq Nawabad, and Kharoti, Chaila and Chaila Poyeen.
160. **Roads.** The Taluqan-Baharak road is paved, giving easy transportation of agricultural inputs, produce, and other movements crucial to the livelihoods of people in the area.
161. **Educational facilities and student population.** Baharak has good coverage of educational facilities compared to other districts, due to its relative ease of access, proximity to larger centres, and the involvement of MoE, UNICEF, and other agencies. The district has five elementary schools (three boys, two girls), three secondary schools (two boys, one girls), and two high schools (one boys and one girls). The district has 10,110 students (6439 boys and 3671 girls).

162. **Health facilities.** District health facility coverage is poor compared to other similarly remote areas. The district has two basic health centres. For higher levels of care, residents go to the Taloqan hospital.
163. **Income and food security.** In Baharak district, estimated average income is AFN 93,833, lower than the national average and the Taloqan district average, however the uncertainty of this value, as in any income figure, is high. An estimated 37 per cent of district residents are considered to be food insecure, and an estimated 16 per cent are considered severely food insecure, based on a World Food Programme (WFP) analysis of ALCS data of 2013-14.

**d. Khwaja Ghar District, Takhar Province**

164. **Overview.** Khwaja Ghar district is located northwest of Taloqan district and has total area of 402 km<sup>2</sup>.
165. **Population and ethnicity.** Khwaja Ghar district estimated 2015 population was 60,400 (38,800 male and 29,600 female) in 62 villages. This is based on 1979 census data, the most recent, and as such must be treated cautiously. The ethnic composition is Uzbek 70 per cent, Pashtun 20 per cent, Tajik 10 per cent and Hazara less than 1 per cent. Conflicts between groups have not been reported. According to the project survey, the majority of the population in villages in the vicinity of the canal are Uzbek (and speak Dari as the first language).
166. **Villages located on the canal.** Villages along the canal include: Dahna Qazal Kocha, Qazal Kocha, primary school, Qaria Haji Qudrat, Arbab Mutalib, Makam Tash Mistari, Qari Abdul Qader, Zoorbron bala, Jilam Khor, Jawkady, Haji Taher, Dost Mohammad, Baharlaw, and Chaghatai.
167. **Roads.** The Taloqan-Khwaja Ghar road is paved. The district has 80 km of paved road, and 150 km of unpaved road.
168. **Educational facilities.** Khwaja Ghar District is less well provided with educational facilities compared to other districts. The district has ten elementary schools (seven boys, three girls), nine secondary schools (five boys, four girls), and eight high schools (five boys, three girls).
169. **Health facilities.** District health facility coverage is better than some other remote areas. There is a basic health centre at Gumbaz village, 20 km from the district center, and a comprehensive health centre very near Khwaja Ghar district, in Dasht-e-Archi district, Kunduz province.
170. **District agriculture.** District agricultural land area is 305,000 jerib, of which 95,000 jerib is cultivable, 50,000 jerib irrigated, 160,000 jerib rain-fed, and 1008 jerib forest.
171. **Income and food security.** In Khwaja Ghar, estimated average income is 87,300 Afs, less than the national average and the Taloqan and Baharak district averages, however the uncertainty of this value, as in any income figure, is high. An estimated 22 per cent of district residents are considered to be food insecure, and an estimated 4 per cent are considered severely food insecure, based on a World Food Programme (WFP) analysis of ALCS data of 2013-14.

#### e. Subproject Area Water Supply, Transport, Communications

172. **Water supply.** Groundwater is used for domestic water supply where wells are present, otherwise, canal water is used. In some areas having neither wells nor perennial canal water, access to adequate quantities of drinking water becomes critical at times.
173. **Transport and communications.** The head and middle areas of the subproject are reasonably accessible and secure. The tail area is less secure and more difficult to access. The main roads are from Taloqan to Baharak (paved), Baharak to Khwaja Ghar (about half the length is paved). Smaller roads include that from Khwaja Ghor to Jhelumkhur at the tail of the canal. Cell phone service and several channels of broadcast TV are generally available. The Cphotovoltaic panels for lighting, television, cell phone charging etc. Bottled gas and biomass is used for cooking.

#### 4. Physical Cultural Resources

174. Archaeological research dates the main canal of RSP Sharawan, the Rud-i-Sharawan, to 1500 to 500 BCE, based on the age of artifacts recovered along it, making it one of the earlier inter-basin transfer canals.<sup>41</sup> The Sharawan interbasin link follows an old channel in the Taloqan plain to the south and a small tributary of the Kokcha in the north. A canal dug 20 m into loose loess over 1 km connects the two basins (Figure 11).<sup>42</sup>
175. Within the Rud-i-Sharawan command area, there are three archaeological sites listed as among Afghanistan's 216 most significant ancient sites and monuments: Uraz Bacha, Urta Buz, and Khush Bai (Appendix 7). Though none appear to be located in or near areas potentially affected by RSP activities, their proximity suggests a heightened potential for chance finds during excavation activities.
176. Local stakeholders stated that no physical cultural resources of importance to them (mosques, graveyards, etc) were located in or near areas potentially affected by RSP activities.

#### 5. Description of Existing Irrigation Scheme

177. **Available information.** No complete list of the scheme's irrigation infrastructures exists. The main components of the scheme and its management arrangements are described below. Beneficiary-identified problem locations are described in Appendix 4.
178. **Approach canal.** An 8 km long free approach channel conveys water from the Taloqan River to the scheme intake near Majar Qeshlaq. As the approach canal nears the intake, its flow passes through a cross-drainage structure (culvert).
179. **Intake works.** The intake works, consisting of an eight-gate headwork, three-gate scour sluice, and spill weir, are located near Taloqan city, the capital of Takhar province. The headwork is in good condition, though sometimes improper gate operation during flooding allows excessive flows into the main canal.

<sup>41</sup> Cf the somewhat earlier (c. 700 BCE) interbasin canals of Sennecherib (Wilkinson, T.J., E.B. Wilkinson, J. Ur, and M. Altaweel (2004). Landscape and settlement in the Neo-Assyrian empire. *Bulletin of the American Schools of Oriental Research*, 340.

[https://www.researchgate.net/publication/30052577\\_Landscape\\_and\\_Settlement\\_in\\_the\\_Neo-Assyrian\\_Empire](https://www.researchgate.net/publication/30052577_Landscape_and_Settlement_in_the_Neo-Assyrian_Empire) )

<sup>42</sup> Lyonnet, B. 1997. Prospections archeologiques en Bactriane orientale (1974-1978), Vol. 2. *Ceramique Et Peuplement Du Chalcolithic a La Conquete Arabe*. Paris: Editions Recherche sur les Civilisations.

180. **Main canal.** The main canal is 83 km long and passes through Taloqan, Baharak, and Khwaja Ghar districts in that order. Canal capacity is about 40 m<sup>3</sup>/sec and does not decrease greatly in size along the canal length. The main canal is unlined, irregular in shape, and silted up in many places. It divides into two at Konchi Qara Parchaw where one-third of the water flows towards Qara Abdal village, and two thirds into Baharak and Khwaja Ghar districts. It passes through three major washes and eight weak soil zones. In the weak soil zones, the canal banks are readily breached by canal flow and flash floods, reducing the canal's conveyance capacity. During operation in these zones, frequent canal bank strengthening is required. In the irrigation season, the main canal water level is frequently too low to supply water to most of the secondary canal offtakes, but there are no cross-regulating structures in the main canal to raise the water level up to the offtakes. The largest outflows from main canal are into the secondary canals that serve the largest command areas.
181. **Distribution network.** There are 36 large and 15 small secondary canals supplied by the main canal. Most of their offtakes do not have modern water control structures. At these traditional offtakes, farmers emplace locally-available materials (sand, mud, brushwood) to raise water levels up to the offtakes and to control flow rates. At the few offtakes that have modern water control structures, some of the structures are in working condition, but many are not.
182. **Drainage.** The scheme has no drainage network as such. Any surplus water reaching the end of the canal drains back into the river.
183. **Water access points.** No water access points are present on the main nor on the secondary canals.
184. **Operation and maintenance arrangements.** The eight registered WUAs within the scheme belong to an established federation. These organizations manage the canal in collaboration with their SBA. Mirabs are responsible for O&M of the main canal, and kokbashis for O&M of the secondary and tertiary canals. O&M activities are very basic and carried out without measuring the flow (no staff gauges).
185. **Current water management issues.** Current water management problems identified by beneficiaries in collaboration with the SBA, and potential civil works solutions considered during Project preparation, are documented in Appendix 4.

## C. Description of Environment – RSP Seyaab

### 1. Location and Size

186. The existing Seyaab irrigation scheme is located in Keshim district, Badakshan province. It irrigates 400 ha with water from the Keshim River (Figure 5). The main canal is 16 km long. The scheme is described further below (para. 201ff).

### 2. Physical Environment

187. **Topography and soils.** From the headworks at Keshim Bazar to Hairatan wash, the subproject area is agricultural fields and settlement areas on either side of the canal. Below Hairatan wash, the area is agricultural fields and settlement on the left hand side, and hills on the right. The command area is a fairly level agricultural zone with some interspersed small low hills. Cultivated soils are typical of an alluvial floodplain.



188. **Air quality and noise.** Air quality is generally good and noise is low, typical of rural areas (all construction sites are in agriculture fields in rural areas). Temporary large increases in dust can occur during dust storms and large livestock migrations.
189. **Rivers and water bodies.** The waterways of the subproject area are the main canal and its secondary branch and higher-order canals. The tail area, in a normal water year, is dry from mid-May to mid-Oct (Jawzan to Mizan). There are no natural or man-made lentic water bodies in the area, other than community cisterns (see below).
190. **Groundwater.** In the tail areas, water table depth has prevented well development. In the head and middle areas, wells are found in about half of villages.

191.

### 3. Social and Economic Conditions

#### a. Keshim District, Badakhshan Province

192. **Population and ethnicity.** Estimated district population is 81,200 (41,500 males and 39,700 females) according to the most recent CSO data. This figure is based on the census data of 1979, the most recent, and as such must be treated cautiously. According to the project survey, the majority of the population in villages in the vicinity of the canal are Tajik (and speak Dari as the first language). There are approximately nine villages in the vicinity of the scheme:
193. **Roads.** The main road connecting Faizabad to Taloqan is paved and allows easy transportation of agricultural inputs, produce, and other movements crucial to the livelihoods of people in the area. A few road sections are narrow and lack drainage systems which sometimes causes problems in winter.
194. **Education facilities.** The district has good coverage of educational facilities compared to other districts, due to its relative ease of access, proximity to Taloqan and Faizabad, and the involvement of MoE, UNICEF, and other agencies. The district has eleven elementary schools (six boys, five girls), eight secondary schools (four boys, four girls), and 15 high schools (twelve boys and three girls).
195. **Health facilities.** District health facility coverage is poor compared to other similarly remote areas. The district has two comprehensive health centres.
196. **Income and food security.** According to ALCS data of 2013-14, district estimated average annual income is about 111,000 Afs, slightly lower than the national average of 120,000 Afs (about USD5 per day); there is a huge difference between the national lowest reported annual income (200 Afs) and the highest (7 million Afs), however the uncertainty of these values is high. An estimated 71 per cent of district residents are considered to be food insecure, and an estimated 43 per cent are considered severely food insecure, based on a World Food Programme (WFP) analysis of ALCS data of 2013-14.

#### b. Subproject Area Water Supply, Transport, Communications

197. **Water supply.** Groundwater is used for domestic water supply where wells are present, otherwise, canal water is used. In some areas having neither wells nor perennial canal water, access to adequate quantities of drinking water becomes critical at times.

198. **Transport and communications.** The subproject area is relatively accessible and secure. The main road is paved and more or less follows the main canal from Keshim to Faizabad. Cell phone service and several channels of broadcast TV are generally available. The national electric grid reaches some of the subproject area villages. Some households have solar photovoltaic panels for lighting, television, cell phone charging etc. Bottled gas and biomass is used for cooking.

#### 4. Physical Cultural Resources

199. No information has been located concerning the age and history of the RSP canal / settlement system. No listed ancient sites are located in the command area. The closest listed site is Darri-i-Kur, 9 km away in the hills to the west-southwest.<sup>43</sup>

200. Local stakeholders stated that no physical cultural resources of importance to them (mosques, graveyards, etc) were located in or near areas potentially affected by RSP activities.

#### 5. Description of Existing Irrigation Scheme

201. **Available information.** No complete list of the scheme's irrigation infrastructures exists. The main components of the scheme and its management arrangements are described below. Beneficiary-identified problem locations are described in Appendix 5.

202. **Approach canal.** The approach channel runs adjacent to Keshim River, where it is vulnerable to flooding and frequent breaching of its left bank. In the approach channel upstream of the headwork, there is no structure.

203. **Intake.** The intake is located in the right bank of Keshim River 200 m downstream of Keshim bazar. It is a concrete two-gate structure lacking gates since their destruction by floods.

204. **Main canal.** The first half of the main canal flows through the level lands of Keshim, and the second half flows along the foot of soil-laden hills, passing through many torrents that wash away the canal during the flood season. During flood season, the main canal overflows, inundating nearby houses and fields. In places, main canal capacity is reduced due to siltation and low banks.

205. **Distribution network.** Secondary and tertiary canals have only traditional structures. Offtake flows are controlled with sandbags, which are emplaced in the main channel to raise the water level up to the offtake, and in the offtake to regulate flow. During flood season, the sandbags wash away and uncontrolled flow and sediment enter the distribution canals, flooding surrounding fields and silting up the canals.

206. **Drainage.** The scheme has no drainage network as such. Any surplus water reaching the end of the canal drains back into the river.

---

<sup>43</sup> Site 046, Darra-i Kur. Variant Name: Baba Darwish. Badakhshan Province. Just northeast of Kalafgan near the village of Chinar-i Gunjus Khan 63 kilometers east of Taluqan, on the road to Faizabad. The cave is high up on the side of the valley near the hamlet of Baba Darwish. Dates: Middle Palaeolithic, 50,000-30,000 BC (carbon 14 and lithic evidence); Late Neolithic/Bronze Age, circa 2,200-1,900 BC (carbon 14, ceramic, lithic evidence). A rock shelter, well-stratified in silt deposits laid down by a stream. Approximately 800 stone implements were recovered, of two basic types: flint and sickle blades, and large diabase points. Other finds included celts, scrapers, pounders, blades, simple jewellery, fauna (fish, rodent, horse, domesticated sheep and goat), a fragment of a Homonid right temporal bone, many bone implements and three fragments of tin bronze. Ceramics were mostly crude, black wares, sometimes decorated. The only architecture was 80 post-holes, suggestive of tents. The only burials were three articulated goat burials. Source: Warwick Ball, *Archaeological Gazetteer of Afghanistan*, 1982, n. 245

207. **Water access points.** No water access points are present on the main nor on the secondary canals.
208. **Operation and maintenance arrangements.** The scheme has no WUAs or IAs currently, but the SBA plans to establish a WUA. A mirab is responsible for main canal O&M and two kokbashis for secondary and tertiary canal O&M. There are no O&M records. O&M activities are very basic and carried out without measuring the flow (no staff gauges). Every year, farmers organize canal cleaning and bank protection work, collecting for this purpose 1000 Afs / jerib (5000 Afs / ha). As needed for other rehabilitation, the mirab collects 50 Afs / jerib (250 Afs / ha). Normally farmers pay 17.5 kg per jerib (87.5Kg/ha) of wheat once per year to the mirab and kokbashis.
209. **Current water management issues.** Current water management problems identified by beneficiaries in collaboration with the SBA, and potential civil works solutions considered during Project preparation, are documented in Appendix 5.

## D. Description of Environment – RSP Laqi

### 1. Location, Size, and History

210. The existing Laqi irrigation scheme is located in Aliabad district, Kunduz province. It irrigates about 160 ha of fertile land around Aliabad city. The main canal is 15 km long and has seven secondary canals (Figure 7). Residents report that the main canal was constructed manually by local people about 80 years ago. The scheme is described further below (para. 225ff).

### 2. Physical Environment

211. **Topography and soils.** In the head area, the main canal runs between the Kunduz River on the left and hills on the right. In the middle area, there are agricultural fields and settlement areas on the left and hills on the right. In the tail, there are agricultural fields and settlement areas on the left and the Aliabad district centre and bazar on the right. The command area is a fairly level agricultural zone with some interspersed small low hills. Cultivated soils are typical of an alluvial floodplain.
212. **Air quality and noise.** Air quality is generally good and noise is low, typical of rural areas (all construction sites are in agriculture fields in rural areas). Temporary large increases in dust can occur during dust storms and large livestock migrations.
213. **Rivers and water bodies.** The waterways of the subproject area are the main canal and its secondary branch and higher-order canals. In a normally water year, there is water in the main and higher-order canals year round. There are no natural or man-made lentic water bodies in the area, other than community cisterns (see below).
214. **Groundwater.** In the head and middle areas, water table depth has prevented well development. In the tail area, wells are found in about half of villages.

### 3. Social and Economic Conditions

#### a. Aliabad District, Kunduz Province

215. **Population and ethnicity.** Estimated district population is 47,300 (23,900 males and 23,400 females). This is based on 1979 census data, the most recent, and as such must be treated cautiously. According to the project survey, the majority of the population in villages in the vicinity of the canal are Uzbeki (and speak Uzbeki as the first

language) with some Tajik and Pashtun. In the scheme itself there are approximately 162 households farming the land.

216. **Villages located on the canal.** There are approximately eleven villages in the vicinity of the canal: Jelawgir, Qandoq, Kisotopak, Cheb Nawabad, Qarya Arbab Mahboob, Laqi Ulya, Kabulian, Laqi Sufia, Dara Sufi, Tahiri and Haqdanya.
217. **Roads.** The main road of the district is paved and allows easy transportation of agricultural inputs, produce, and other movements crucial to the livelihoods of people in the area. A few road sections are narrow and lack drainage systems which sometimes causes problems in winter.
218. **Education facilities.** Aliabad district has good coverage of educational facilities compared to other districts, due to its relative ease of access, proximity to larger centres, and the involvement of MoE, UNICEF, and other agencies. The district has eleven elementary schools, six secondary schools, and three high schools.
219. **Literacy.** The literacy rate is 34.3 per cent nationally, and 28.7 per cent (44.4 per cent male, 12.5 per cent female) in rural areas.
220. **Health facilities.** District health facility coverage is poor compared to other similarly remote areas. The district has two comprehensive health centers, two basic health centers, and one sub-health center. For major treatment, patients travel to Kunduz city.
221. **Income and food security.** According to ALCS data of 2013-14, district estimated average annual income is about 111,000 Afs, slightly lower than the national average of 120,000 Afs (about USD5 per day); there is a huge difference between the national lowest reported annual income (200 Afs) and the highest (7 million Afs), however the uncertainty of these values is high. An estimated 71 per cent of district residents are considered to be food insecure, and an estimated 43 per cent are considered severely food insecure, based on a World Food Programme (WFP) analysis of ALCS data of 2013-14.
222. **Water supply.** Groundwater is used for domestic water supply where wells are present, otherwise, canal water is used. In some areas having neither wells nor perennial canal water, access to adequate quantities of drinking water becomes critical at times.
223. **Transport and communications.** The subproject area is near Kunduz city and is accessible but relatively less secure than the other two RSPs. The main road access to the subproject area is the Baghlan to Kunduz road. Cell phone service and several channels of broadcast TV are generally available. The national electric grid reaches the larger villages. Some households have solar photovoltaic panels for lighting, television, cell phone charging etc. Bottled gas and biomass is used for cooking.

#### **4. Physical Cultural Resources**

224. No information has been located concerning the age and history of the RSP canal / settlement system. No listed ancient sites are located in the command area. The closest listed site is Darri-i-Kur, 16 km downstream to the north.<sup>44</sup>

---

<sup>44</sup> Site 037. Chaqalaq Tepe. Variant Name / includes: Paiwan Tepe. Qunduz Province. 11 kilometers south of Qunduz; 3 km southeast of Durman Tepe; slightly north of Chahar Deh, off the Tashqurghan Road. Dates: Graeco-

## 5. Description of Existing Irrigation Scheme

225. **Overview.** No complete list of the scheme's irrigation infrastructures exists. Each component of the scheme, and its management arrangements, are described below. Beneficiary-identified problem locations are described in Appendix 6.
226. **Approach canal.** A free (unregulated) approach channel brings water from the Baghlan River to the main canal intake near Jelawgir, south of Aliabad city. The approach channel conveyance capacity is about 7.8 m<sup>3</sup>/s.
227. **Intake.** The main canal intake has no modern water control structures.
228. **Main canal.** The main canal is 21 km long, unlined and irregular in shape. Its current capacity is estimated to be about 4 m<sup>3</sup>/sec. In some of its reaches, canal bank levels are low due to erosion from overtopping flood flows. From the intake, the initial reach of the main canal runs north immediately alongside the Baghlan River. The main canal left bank just below intake is also the river right bank. Here the main canal left bank is heavily damaged, and, about 140 m below the intake, is as a result so low that the entire canal discharge flows back into the river. Further downstream on the main canal, it passes through areas of hilly terrain where there are six washes that erode its banks and deposit sediment on the canal bed.
229. **Distribution network.** Along the main canal there are seven existing traditional offtakes (no modern water control structures) to secondary canals. There are no cross-regulating structures in the main canal to raise water levels up to the secondary canal offtakes. During the low flow period, farmers emplace sandbags and brushwood in the main canal to raise its water level up to the offtakes, and to regulate flow rates into the secondary canals. During flood season, these temporary materials wash away, and uncontrolled flows and sediment enter the secondary canals.
230. **Drainage network.** The scheme has no drainage network as such, and surplus water reaching the end of the canal (if any) drains back into the river.
231. **Water access points.** No water access points are present on any of the canals.
232. **Operation and maintenance.** The SBA and an IA (in the process of registering) manage the scheme. A mirab is responsible for main canal O&M, and manages 22 kokbashi responsible for secondary and tertiary canal O&M. The mirab does not keep any written records of O&M activities, which are very basic and carried out without measuring the flow (no staff gauges). The mirab collects 50 Afs/jerib (250 Afs/ha) from farmers for routine O&M work. This collection is informal (without written records). For annual canal repair and desilting, farmers contribute 1000Afs/jerib (5000 Afs/ha). Once a year, farmers give the mirab and his assistants wheat at the rate of 17.5 kg/jerib (87.5 kg/ha).
233. **Current water management issues.** Current water management problems identified by beneficiaries in collaboration with the SBA, and potential civil works solutions considered during Project preparation, are documented in Appendix 10.

---

Bactrian, 3rd-1st century BC (stylistic evidence); Kushan, 1st-3rd century AD (stylistic); Kushano-Sassanian, 4th-5th century (numismatic, stylistic); Turk, 7th-8th century (ceramic, numismatic). A fortified village surrounded by two enclosure walls. Excavations revealed about one eighth of the upper area of the mound. Structures included a fragmentary stupa, and various irregular rooms. Finds included some limestone Buddhist sculptures and pillar bases and 15 coins. Adjacent is another very low mound called Paiwan Tepe. Source: Warwick Ball, *Archaeological Gazetteer of Afghanistan*, 1982, n.172. <http://www.cemml.colostate.edu/cultural/09476/afgh05-037.html>

## V. ALTERNATIVES

### A. No-Project Alternative

234. In the no-project alternative, irrigation schemes in the Panj-Amu basin would likely be rehabilitated and upgraded by MEW with funding from other sources in much the same manner as under the Project. This is believed to be the case because (i) the Project is designed to support Afghanistan and MEW in implementing their pre-existing irrigation development plans, and (ii) the Project utilizes commonly-used technical options for irrigation rehabilitation and upgrading that would likely also be used in the no-project alternative ie with alternative funding.

### B. Selection of RSPs

235. These RSPs were selected from a candidate shortlist of 21 subprojects screened from a long list of 62 subprojects identified and prioritized by the Ministry of Energy and Water (MEW), the Panj-Amu River Basin Agency (RBA), and its Sub-Basin Agencies (SBAs). Shortlisting criteria included indicators of technical, economic, social and environmental viability and consistency with Project design. The process is described in more detail in the EARF.

## VI. POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

### A. Relevant Findings of Monitoring Reports of Previous Similar ADB Afghanistan Projects

236. Since October 2013, ADB water resources projects in Afghanistan began disclosing environmental monitoring reports (EMR, nominally biannual) on the ADB website. A summary of the findings of these EMRs is provided in Appendix 8.

237. These reports are relevant to RP impact assessment and EMP design because they provide a window on the construction-phase environmental impacts, GRM, and environmental reporting processes of similar projects – similar in concept, objectives, executing agencies, implementation arrangements, baseline environment, types of civil works and construction activities, potential and actual impacts, mitigation, monitoring, public consultation, and complaints and grievances.

238. Key findings of relevance to RSP environmental assessment and management are:

- The level and incidence of adverse impacts observed during monitoring was very low. This indicates that irrigation rehabilitation construction can be an environmentally benign activity in typical baseline environment conditions with the provision of feasible and appropriate mitigation measures. Potential adverse impacts highlighted during monitoring included ensuring continued irrigation delivery during construction and managing minor construction impacts; both were managed successfully (Appendix 8, para. 5ff).
- The construction-phase EMP implementation arrangements (in particular, the monitoring arrangements) of the Water Resources Development Improvement Project (WRDIP) Tranche 1 appear to be a good model for the Project to adopt. WRDIP Tranche 1's arrangements appear to have worked well within an overall Project implementation structure similar to the Project's (Appendix 8, paras. 8ff).

- Very small numbers of complaints were made to the GRMs. Most were related to construction site waste management and were resolved relatively quickly by construction supervisors or PIO coordinators (Appendix 8, paras. 12ff).
- The GRM arrangements of the Western Basin Project appear to provide a good model for the Project to adopt (Appendix 8, paras. 12ff).
- An interesting issue arose on WRDIP Tranche 1, when conflicts between farmers and contractors arose during the construction of division structures. Though farmers had signed off on the construction drawings, at some sites they withdrew their support when they saw the new division structure under construction. This points to a need to improve the disclosure of division structure designs to farmers – perhaps in this disclosure activity, proponents could include a video or a portable physical model, or a field visit to an existing division structure, in addition to drawings, to assist farmers in visualizing the configuration and operation of their proposed structure (Appendix 8, paras. 13ff).
- The organization and quality of the EMRs was quite variable (Appendix 8, paras. 15ff). To improve this, an example EMR outline for the Project is presented (Table A8.2).

## B. RSP Impacts and Mitigation

239. The subprojects have minimal impact since an implicit least-cost analysis of a set of eligibility and prioritization criteria was used for sub-project selection. Criteria included 'No significant potential environmental impact as outlined in the ADB Safeguard Policy Statement (June 2009)' - more specifically, GoIRA Category 1 subprojects, and Category 2 subprojects for which NEPA requires EIA, are excluded from Project financing as are ADB Category A subprojects – and 'Not in an environmentally protected area.'
240. In addition, the works are small-scale and along the ROW so any negative impact is minimal. The only impact of any note for the three representative sub-projects is the removal of 346 willow trees (201 mature trees and 145 saplings) which will need to be re-planted.
241. The three representative sub-projects represent a range of scheme size (Laqi – small, Seyaab – medium and Sharawan – large) and water distribution problems and solutions, that can be considered representative of the majority of schemes in the basin, including the other 18 schemes short-listed for support under the project. However, in terms of environmental characteristics, potential environmental impacts and required mitigation measures, the three schemes are almost identical so impact and management/mitigation measures are combined for all three, as shown in the paragraphs below. Other sub-projects to be designed under the project are also likely to have very similar impacts and management/mitigation measures.
242. **Construction.** The potential construction-phase impacts and corresponding mitigation / management measures are:
- *Impact:* Loss of landscape, viewshed value, and habitat value due to tree removal on the public right of way of canals at construction sites (Table 4, Table 5, and Table

- 6).<sup>45</sup> *Management*: Tree plantation of native species at alternate sites will be identified in consultation with local communities. If agreed, this will be in surrounding hillsides as part of the tree plantation under output 3. If not agreed, suitable sites on public land will be identified in the irrigation scheme, and plantation undertaken by the civil works contractor. This will be a contract requirement.
- *Impact*: Temporary disruption of irrigation water supplies at in-canal construction sites, or blockage of vehicle, pedestrian, and livestock movement. *Management*: The civil works contractor will provide temporary irrigation channels and roads/paths. This will be a contract requirement. Works, where possible, will be prioritized during the late autumn and winter seasons, depending on the weather and accessibility.
  - *Impact*: Loss of landscape and viewshed value, landform alteration/destruction, erosion, landslides, sedimentation, and water pollution from quarries used to source or created to obtain construction materials. *Management*: Contract provisions will state that the contractor must seek prior approval from the PIO (who will obtain PMO approval) on the selection of quarry sites.
  - *Impact*: Landscape alteration (impacts on topography), canal sedimentation, and water pollution from improperly managed excavation spoil. *Management*: The contractor will select and manage spoil disposal sites to avoid adverse impacts. Prior approval from the PIO on the selection of spoil sites will be undertaken. This will be a contract requirement. The PIO will ensure such spoil sites have been selected with community agreement.
  - *Impact*: Landscape disruption (impacts on topography) from borrow pits and redundant canals left unfilled post-construction. *Management*: The contractor will fill in of pits and redundant canals when no longer needed. This will be a contract requirement.
  - *Impact*: Impacts to cultural resources could occur due to unexpected discoveries in the construction process. (some Project area canals are thought to be several thousand years old). *Management*: Contract provisions will state that: "In the event of unanticipated discoveries of cultural or historic artifacts (movable or immovable) in the course of the work, the contractor shall take all necessary measures to protect the findings and shall notify the PIO and SBA representatives".
  - *Impact*: While not envisaged as part of the three RSPs, there could in theory be crop damage from temporary construction roads. *Management*: The contractor will minimize/avoid damage through community consultation re timing and placement. If significant damage is expected then the LARP will be updated compensation to affected farmers provided.
  - *Impact*: Routine construction-phase impacts (dust, noise, vibrations, air pollution, liquid and solid waste generation, occupational health and safety). *Management*: Tenders include standard construction contract environmental safeguard clauses (Appendix 9) that require bids to include site environmental management plans (SEMPs); construction supervision tracks SEMP implementation.
  - *Impact*: Impact on fauna. There will be no direct impact on fauna. There may be indirect impacts due to tree removal, water pollution and topographical changes. See mitigation measures above.
  - *Impact*: Impact on protected areas will be zero as one of the selection criteria is that no sub-projects are to be located in or in the vicinity of protected areas.

---

<sup>45</sup> Impacts of the removal of trees on tree users are addressed by the RSPs' Land Acquisition and Resettlement Plans (LARPs).



- *Impact:* Impact on socio-economic environment. No new irrigation channels will be built so no communities will be split. There will be a positive impact on work availability due to the need for temporary construction staff from the local area during the construction period (over seven years). Temporary water supply distribution problems will be negated through temporary channels. Health and safety aspects of construction will be mitigated by the construction contractors. There will be no impact on any public infrastructure such as transmission lines...etc. See a full list of mitigation measures above which address socio-economic impacts.

243. **Operation.** The main potential subproject operation impacts are:

- *Impact:* Hydrologic changes - changes in magnitude and timing of water abstraction, irrigation flows, flooding, drainage, erosion, and sedimentation. While such changes could potentially be negative, it is more likely that there will be a positive impact through improved availability of water for environmental flows. The impact on groundwater quantity will be negligible, or in fact positive, due to the construction of check dams and other structures to slow down water velocity on hillsides which will increase water infiltration. *Management:* Irrigation works are well-designed and constructed; irrigation and water user associations and river sub-basin / basin agencies are supported to achieve intended benefits while mitigating adverse impacts.
- *Impact:* Knock-on impacts of increased agricultural production due to improved water availability – on soil and water (including groundwater) quality due to increased use of fertilisers and pesticides. *Management:* Under output 2, training will be provided to farmers by DAILs on improved agronomic practices including correct application of fertilisers and pesticides, so as to mitigate any negative impact.
- *Environment-on-project (EOP) impacts:* of erosion, sedimentation, flooding, drought, and climate variability on irrigation infrastructure, farmer behavior, and benefit realization. Impacts will likely be positive. Soil erosion (and vegetation loss) and sedimentation will be reduced from reforestation and structures such as check dams in surrounding watersheds. While not a priority in the three representative sub-projects, any canal bank protection will also have a positive impact on terrestrial ecology from preventing soil and vegetation from being washed away. Flooding will also be reduced from watershed interventions, as well as the construction or improvement of intakes. Improved water availability will reduce the impact of droughts. *Management:* Project management systems to ensure irrigation works are well-designed and constructed; support to irrigation associations (IAs) and water user associations (WUAs) and river sub-basin / basin agencies to reduce EOP impacts and increase resiliency to them. This will include training to WUAs and IAs on O&M of irrigation infrastructure, and protection and management of watershed in the vicinity of schemes, under output 3.
- *Impact:* Impact on fauna. There will be no direct impact on fauna. There may be indirect impacts due to soil erosion and water quality and quantity changes. See mitigation measures above. Such impacts are likely to be positive as a result of project interventions.
- *Impact:* Impact on protected areas will be zero as one of the selection criteria is that no sub-projects are to be located in or in the vicinity of protected areas.
- *Impact:* Impact on socio-economic environment. Impacts will be positive due to a reduction in poverty from improved farm incomes, and an increase in work availability due to an increase in farm labor requirements. The project will also have a positive impact on domestic and livestock water supply through the construction of

water access points. No new irrigation channels will be built so no communities will be split.

## VII. ENVIRONMENTAL MANAGEMENT PLAN

### A. Mitigation Plan

#### 1. Summary of Impacts and Description of Proposed Mitigation Measures

244. The impacts and proposed mitigation measures are described above (see paras. 236ff) and summarized in Table 7.
245. The mitigation plan will be reviewed and developed to a greater level of detail at several points during Project implementation (see paras. 278ff).
246. Capacity building of MAIL institutions (DAILs and IAs) responsible to implement operation-phase measures at second/tertiary/farm levels, to mitigate the impacts of irrigation operation and knock-on agricultural changes, will be mainstreamed into the activities of Project Output 2, improved on-farm water management.

#### 2. Environmentally Responsible Procurement As A Mitigation Measure

247. Prior to sourcing construction materials from an existing quarry, or before creating a quarry from which to source construction materials, contractors will identify the quarry or potential quarry site to the relevant PIO. Procurement can proceed only after a PIO construction supervisor, advised and assisted by their PMO environment safeguards officer and field staff if necessary, has determined that no significant adverse impacts are posed by the quarry site or quarrying activities (e.g. sedimentation, erosion, or sliding adversely affecting water courses, settlements, roads, agriculture etc). If significant adverse impacts are identified, mitigation measures at the proposed quarry / quarry site may be considered, or a different existing quarry / quarry site / quarrying activities can be substituted and assessed.

#### 3. Responsibility for Mitigation Implementation

248. **Overview.** Responsibilities for mitigation implementation (pre-construction to operation) are shown in Table 7.
249. **Pre-construction phase.** Responsibility for implementing pre-construction mitigation measures will rest with MEW PMO, FSDC, and MAIL PMO (Table 7).
250. **Construction phase.** Responsibility for implementing construction mitigation measures will rest with contractors selected to implement civil works packages, under the supervision and overall management of the responsible ministry's PIO and PMO respectively (Table 7).
251. **Operation phase.** Mitigation of operation-phase impacts involves, first, capacity building of sub-basin and RSP level institutions (SBAs, DAILs, WUAs, IAs), and then implementation of mitigation measures by the strengthened institutions. Capacity building to implement operation-phase mitigation will be planned by MEW PMO and MAIL PMO with the advice and assistance of FSDC and ICS. The planned capacity building activities will be delivered by staff or contract trainers under their supervision to staff/members of the SBAs, DAILs, WUAs, and IAs, who will be responsible for implementing operation-phase mitigation (Table 7).

## B. Monitoring Plan

### 1. Monitoring Activities

252. Monitoring activities are shown in Table 8. The monitoring plan will be reviewed and developed further at several points during the Project (Section X.C).

### 2. Responsibility for Monitoring

253. **Pre-construction phase.** Responsibilities for pre-construction monitoring will rest with FSDC, MEW PMO, and MAIL PMO (Table 8).

254. **Construction phase.** Under the direction of the responsible ministry's PMO and with advice and assistance from ISC, monitoring of construction-phase impacts and mitigation will be integrated into the work plans of the responsible ministry's PIO construction supervisors. Schedules of monitoring activities, procedures, and checklists to be used by these supervisors will be prepared in collaboration with them. On-the-job training and backstopping of PIO construction supervisors will be provided as required by the PMO environment safeguards with support from the ICS national environment specialist (Table 8).

255. **Operation phase.** Monitoring of operation-phase impacts involves, first, capacity building of sub-basin and RSP level institutions (SBAs, DAILs, WUAs, IAs) to undertake participatory monitoring, and then the undertaking of monitoring activities the strengthened institutions. Capacity building to undertake operation-phase participatory monitoring will be planned by the PMOs with the advice and assistance of ICS. The planned capacity building activities will be delivered by staff or contract trainers under their supervision to staff/members of the SBAs, DAILs, WUAs, and IAs, who will in turn be responsible to undertake operation-phase monitoring (Table 8).

256. Note that due to the limited potential impact, no monitoring is planned for soil and water quality, and as such no baseline survey has been undertaken. Note however, that monitoring of water quality is a planned task of the river basin agency and sub-basin agencies. A separate ADB TA project (TA-9095 REG: Strengthening Integrated Water Resources Management in Mountainous River Basins) will likely provide assistance to the Panj-Amu RBA in undertaking a water quality baseline for the river environment, and build its capacity for follow-up water quality monitoring as part of its institutional mandate.

## VIII. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

### A. RSP IEE Consultation and Disclosure

#### 1. IEE Public Consultation Meetings

257. **Overview of public consultation programme.** During 11-18 Feb 2016, IEE public consultation meetings (PCM) were held the three RSPs. A total of 16 meetings were held, six with women (two per RSP), and ten with men (in head, mid-canal, and tail areas of each RSP). Two of the men's meetings in RSP Seyaab were conducted by the Keshim district governor; the remaining meetings were conducted by PPTA staff, a woman for the women's meetings and a man for the men's meetings. The dates, places, attendees, and records of these meetings are documented in Appendix 10.

258. **Men's meetings.** The concerns expressed by men who attended meetings at the head, mid-canal, and tail areas of each RSP are shown in Table 9. All of these expressed concerns are incorporated in the RSP designs, with one exception – foot/vehicle bridges (a type of “community structure”) will not be provided, as this type of civil work is outside the scope of Project financing. Stakeholders will be advised of this exclusion as part of IEE local disclosure (see paras. 260ff).

259. **Women's meetings.** The concerns expressed by women who attended meetings in each of the three RSPs focused on domestic water issues. Consistent across all the meetings, women stated that canal water is an important domestic water source, and therefore they face domestic water supply shortages when there is less water in the canal, typically during the May to Aug/Sep/Oct period. They expect the RSPs will result in more water in the canal during this period, which will benefit them. They expressed a need for domestic water supply physical works – wells or feeder canals to bring water from the irrigation canal to the settlement areas. RSP designs will include water access points for domestic water collection, laundry, and livestock watering. Water access point locations will be identified early in the Project implementation period in consultation with local stakeholders (see paras. 265ff).

## **2. Disclosure of RSP IEE Findings**

### **a. To Project-Affected People And Other Stakeholders**

260. ADB requires proponents to disclose IEE findings relevant to local stakeholders, in a form, place, and languages accessible to them, prior to Project appraisal.<sup>46</sup> An analogous requirement exists for local disclosure of social safeguards findings. A single combined environmental and social disclosure is planned, recognizing its advantages in efficiency, clarity, and reduced security risk to proponent representatives.

261. Information relevant to local stakeholders that will be provided includes:

- (i) What will be affected by the subproject?
- (ii) When will these effects occur?
- (iii) When and how will the effects be mitigated and/or compensated and how?
- (iv) How were concerns expressed by stakeholders in the IEE public consultation meetings addressed by the Project proponents? Have any concerns not been addressed, and if so, which ones and why?
- (v) Who is available to listen to concerns, answer questions, and receive complaints?

262. The PPTA consultant will prepare a presentation of this information in English and in Dari translation, and, after reviewing it with representative local stakeholders (WUA and IA members, mirabs, elders, district governors, women, etc), print and distribute brochures and/or handbills to be placed in public places (typically local mosques),

---

<sup>46</sup> “When the borrower/client submits [an IEE or a safeguard document of certain other types to ADB], the operations department reviews [it] to confirm that (i) relevant information on potential project impacts and mitigation measures...has been made available, in a timely manner and before project appraisal, in an accessible place, and in a form and language(s) understandable to project-affected people and other stakeholders...” ADB. (2013). Safeguard Review Procedures F1/OP, para. 17. *Operations Manual*. Retrieved from <http://www.adb.org/sites/default/files/OM-F1-20131001.pdf>

### **b. On ADB Website**

263. The draft IEE will be disclosed on the ADB website before project appraisal. Any revised IEE received by ADB will be disclosed on the ADB website when it is received. If no revision is made to the IEE, the draft IEE becomes the final document.<sup>47</sup>

### **B. EMP Implementation Consultation and Disclosure**

264. Consultation and disclosure during EMP implementation will include.<sup>48</sup>

- (i) pre-construction stakeholder involvement in the design of mitigation measures (specifically, in selecting the locations of water access points and afforestation areas);
- (ii) notification of local communities when project activities are going to take place;
- (iii) provision for public participation in environmental monitoring;
- (iv) public consultation during the preparation of biannual environmental monitoring reports;
- (v) disclosure of biannual environmental monitoring reports on the ADB website; and
- (vi) local disclosure of monitoring results to local communities.

### **C. RSP Pre-Construction Water Access Point Consultation and Disclosure**

265. Before finalizing RSP designs, RSP local stakeholders will be consulted to identify their preferences for types and locations of water access points along subproject canals. The implementation support consultant will add these water access points to RSP designs and disclose the types and sites chosen to stakeholders, prior to tendering.

### **D. RSP Construction-Phase Consultation and Disclosure**

266. Construction-phase environmental monitoring will be incorporated into the on-site work plans and checklists of PIO construction supervisors. These supervisors will be in regular contact with WUAs and IAs to exchange information about monitoring activities and results, construction schedules, activities, progress, complaints, and concerns. WUAs and IAs may arrange to participate in construction monitoring as and when they wish.

267. Construction supervisors will include environment-related matters in their regular reporting to PIO management. Management will in turn follow up with stakeholders as needed and appropriate to provide information and resolve issues (see also Section IX).

268. Notification of upcoming construction and other Project activities will be provided to WUAs and IAs for posting at construction sites (e.g. signboards) and in places readily accessible to local people.

269. Biannual environmental monitoring reports (EMRs) will be prepared documenting environment-related consultation and disclosure events during the reporting period. An

<sup>47</sup> ADB. (2013). Safeguard Policy Statement F1/BP and Safeguard Review Procedures F1/OP. Operations Manual. Retrieved from <http://www.adb.org/sites/default/files/OM-F1-20131001.pdf>

<sup>48</sup> Following the guidance in para. 157, ADB. (2003). Environmental Assessment Guidelines. Manila. Retrieved from <http://www.adb.org/sites/default/files/institutional-document/32635/files/environmental-assessment-guidelines.pdf> now updated with ADB (2012) Environment Safeguards, A Good Practice Sourcebook, Manila.

example EMR outline is provided in Appendix 8. WUAs and IAs will be consulted during EMR preparation. Monitoring results will be locally disclosed in an appropriate manner (as described in paras. 260ff). EMRs will be disclosed on the ADB website.

#### **E. RSP Operation-Phase Consultation and Disclosure**

270. When RSPs become operational, the EMP and operation-phase public consultation plan will be reviewed and revised (see paras. 278ff). Public consultation and disclosure on impacts and mitigation of irrigation scheme operation and knock-on agricultural changes will be mainstreamed into the activities of Project Output 2, improved on-farm water management, and into MEW activities related to operation and maintenance of water conveyance infrastructure and WUA establishment and capacity building.

### **IX. GRIEVANCE REDRESS MECHANISM**

#### **A. Complaints on Similar ADB Water Resources Projects in Afghanistan**

271. As mentioned previously, the monitoring reports of four similar ADB projects report very small numbers of complaints made to their GRMs, most related to construction site waste management and were resolved relatively quickly (Appendix 8, paras. 12ff).

272. On WRDIP Tranche 1, conflicts arose between farmers and contractors during the construction of division structures. Though farmers had previously signed off on the construction drawings, at some sites they withdrew their support when they saw the new division structure under construction. The monitoring reports do not say that this type of conflict was registered with the GRM – the general impression given is that farmers communicated their concerns directly to contractors and site supervisors (and indeed it sounds as if they intervened directly to stop construction).

#### **B. Proposed Mechanism, Procedure, and Timeframe**

273. **Model for construction-phase GRM.** The GRM arrangements of the Western Basin Project appear to provide a good model for the Project to adopt (Appendix 8, paras. 12ff).

274. **Construction-phase GRM.** The GRM will be established prior to commencement of construction in PMOs at central level, PIOs at subbasin / RSP level, and in the WUAs/IAs at construction level. WUA/IA heads will be provided with logbooks for grieved individuals to record complaints and comments, and will be charged to inform their PIO of new logbook entries within one week. PIO will respond to complainants within two weeks of the complaint registration date. PIO construction supervisors will attempt to address the complaint at field level. If they are unsuccessful, they will refer the matter to the PIO director, who may communicate with or call a meeting of contractors, PMO and PIO staff, and/or ISC consultants. If this is unsuccessful, s/he will refer the matter to PMO for resolution. At any time, the complainant has the option of seeking legal remedy.

## X. FINDINGS AND RECOMMENDATIONS

### A. Project Justification

275. Each of the three RSPs is anticipated to create significant benefits for local people while having acceptable residual adverse after the implementation of feasible environmental management measures.

### B. Risks and Assurances

276. Insecurity and weak governance are a risk to subproject sustainability. To mitigate this risk, RSPs were selected where sustained engagement of project proponents with local government and communities, farmers, and traditional water managers is achievable; and longer-term impact of Project institutional strengthening on local institutions is possible.
277. Existing and Project-provided irrigation infrastructure, crops, and communities and their assets more generally are at risk from occurrences of low-frequency, large-magnitude environment-on-project impact events (floods, drought, earthquakes). These risks are somewhat mitigated by event-resilient engineering design, and through the availability of Government and donor post-disaster relief and rehabilitation support to affected communities.

### C. Updating of EMP and Public Consultation/Disclosure Plan During Implementation And Operation

278. During early Project implementation – as a priority task and as more complete RSP construction information becomes available – Project environment experts and those responsible for construction-phase RSP EMP implementation will review the RSP EMPs and RSP consultation and disclosure plan, and finalize them to an implementation-ready level of detail. EMP elements to be upgraded or added, on an as-needed basis, include (i) reporting responsibilities, (ii) EMP work plan, (iii) environmentally responsible procurement plan, (iv) detailed EMP costs, and (v) mechanisms for taking corrective action.<sup>49</sup>
279. During the transition from construction to early operation, and then to full benefit realization, in each RSP, responsibility for EMP and consultation and disclosure plan implementation will be transferred from implementation-phase Project environmental managers to operation-phase and ultimately post-Project RSP environmental managers.
280. During this transition, additional review and elaboration of the operation-phase elements of these plans will be necessary, (i) to adjust them to RSP-level environmental management capacity, or to include capacity building in areas where this is needed, and (ii) to develop them to a realistically implementable state.

## XI. CONCLUSIONS

281. Based on site surveys of the locations where structures will be built, and following a review of potential wider impacts following public consultation, the three RSPs are not expected to have significant adverse impacts. In summary, the impact of

<sup>49</sup> Para. 156, Section VI.D, ADB (2003) *Environmental Assessment Guidelines*. Manila. Retrieved from <http://www.adb.org/sites/default/files/institutional-document/32635/files/environmental-assessment-guidelines.pdf> now updated with ADB (2012) *Environment Safeguards, A Good Practice Sourcebook*, Manila.

the three representative sub-projects is minimal, given the small scale of the works. The only impact of any note is the removal of a 346 willow trees which will need to be re-planted. This and other mitigation measures are included in the Environmental Management Plan. Therefore this IEE becomes the completed environmental assessment of these RSPs.

282. This IEE will be included in MEW's applications to NEPA for environmental Certificate of Clearance for each of the three subprojects. If NEPA determines that an RSP requires EIA, it renders the RSP ineligible for Project financing, and the RSP will be dropped from the Project.



Table 1: RSP Sharawan, Requested and Selected Civil Works

No.	Toponym (listed in upstream-to-downstream order)	Civil works located on	Requested civil works						Selected civil works			
			R&U offtake structure	Cross-regulator	Bank protection (m)	Raise canal banks (m)	Other	Command area if R&U offtake (ha)	Out of scope?	No.	Selected for / included in RSP proposed works	Command area, selected offtakes & cross-regulators
<b>Totals:</b>			7	9	1630	1100	6	1955	6	13		1831
1	Majar Qeshlaq	Approach canal			100							
2	[Main canal]	Main canal					1000m					
3	[Main canal]	Main canal					1000m					
4	Amanullah	Offtake (right)	X					162		1	X	162
5	Amanullah	Main canal		X						2	X	
6	Baghak 2	Offtake (left)	X					31		3	X	31
7	Baghak 2	Main canal		X						4	X	
8	Baghak 2	Main canal			200	200						
9	Konchi	Main canal					X		X			
10	Konchi	Offtake (left)	X					1110		5	X	1110
11	Konchi	Main canal		X						6	X	
12	Eshan Saeed	Main canal		X				173		7		173
13	Qara Parchaw	Main canal			700	700						
14	Sultan Mahmood	Main canal/spill weir					X					
15	Safar Ali	Main canal			200	200						
16	Haji Musa	Offtake	X					109		8	X	109
17	Haji Musa	Main canal		X						9	X	
18	Och Ariq	Secondary canal			80				X			
19	Sasmaq	Secondary canal							X			
20	Haji Abdul Qayum	Offtake	X					42		10	X	42
21	Haji Abdul Qayum	Main canal		X						11	X	
22	Yangi Ariq	Offtake			0			120	X			
23	Yangi Ariq	Secondary canal							X			
24	Abil Ariq	Main canal		X				164		12		164
25	Chapaq Ariq	Secondary canal			200				X			
26	Haji Latif	Offtake	X					17				
27	Haji Latif	Main canal		X								
28	Haji Latif	Main canal					X					
29	Keshwary	Offtake	X					27				
30	Keshwary	Main canal		X								
31	Jelum Khor	Offtake			150							
32	Water access	Main canal					X			13	X	

Note: Grey shaded rows denote community-requested infrastructure not selected for inclusion in the RSP proposed civil works

**Table 2: RSP Seyaab, , Requested and Selected Civil Works**

No.	Toponym (listed in upstream-to-downstream order)	Civil works located on	Requested civil works						Selected civil works			
			R&U offtake structure	Cross-regulator	Bank protection (m)	Raise canal banks (m)	Other	Command area if R&U offtake (ha)	Out of scope?	No.	Selected for / included in RSP proposed works	Command area, selected offtakes & cross-regulators (ha)
<b>Totals:</b>			4	4	420	0	15	98	0	10		98
1	Keshim Bazaar	Main canal					X			1	X	
2	Nezamuddin house	Main canal			150							
3	Jawar Machin Khalid	Main canal			20							
4	Haji Gul Mad Pul e Seyaab	Main canal					X					
5	Qomandan Zarin	Offtake (left)	X					16		2	X	16
6	Qomandan Zarin	Main canal		X						3	X	
7	Qomandan Zarin	Main canal			50							
8	Haji Wali	Offtake (left)	X					30		4	X	30
9	Haji Wali	Main canal		X						5	X	
10	Haji Wali	Main canal			80							
11	Pul Seyaab Dare Haira	Offtake (left)	X					26		6	X	26
12	Pul Seyaab Dare Haira	Main canal		X						7	X	
13	Pul Seyab Dare Haira	Main canal			30							
14	Hairatan	Main canal					X					
15	Dare Qabrestan	Main canal					X					
16	Dare Qabrestan	Main canal			90							
17	Tejari Khail Bai	Main canal					X					
18	Qurban Bai	Main canal					X					
19	Sheryani	Main canal					X					
20	Naw Pul	Main canal					X					
21	Khyal	Main canal					X					
22	Maida Kocho	Main canal					X					
23	Kocho Zabi	Main canal					X					
24	Ghara Dara	Offtake (left)	X					26		8	X	26
25	Ghara Dara	Main canal		X			X			9	X	
26	Koche Pusht Maktab	Main canal					X					
27	Dara Posht Clinic	Main canal					X					
28	Water access points	Main canal					X			10	X	

Note: Grey shaded rows denote community-requested infrastructure not selected for inclusion in the RSP proposed civil works

Table 3: RSP Laqi, Requested and Proposed Civil Works

No.	Toponym (listed in upstream-to-downstream order)	Civil works located on	Requested civil works						Selected civil works			
			R&U offtake structure	Cross-regulator	Bank protection (m)	Raise canal banks (m)	Other	Command area if R&U offtake or regulator (ha)	Out of scope?	No.	Selected for / included in RSP proposed works	Command area, selected offtakes & cross-regulators (ha)
<b>Totals:</b>			6	6	380	0	10	149	0	6		72
1	Jelawgir	Baghlan River & approach channel			200							
2	Jelawgir	Baghlan River & approach channel					X					
3	Laqi headwork	Main canal					X			1	X	
4	Chesma e Gandab	Main canal					X					
5	Sang e Sorakh	Main canal					X					
6	Qandooq	Main canal	X						26			
7	Qandooq	Main canal		X								
8	Shelatma	Main canal			50							
9	Kisotopak	Main canal	X						22			
10	Kisotopak	Main canal		X								
11	Dojar	Main canal					X					
12	Espand Kamar	Main canal	X						18			
13	Espand Kamar	Main canal		X								
14	Chebguzar-1	Main canal					X					
15	Chebguzar-2	Main canal					X					
16	Haji Rashid	Main canal			30							
17	Haji Qudos	Main canal					X					
18	Arbab Sher Ali	Main canal	X						11			
19	Arbab Sher Ali	Main canal		X								
20	Abdul Hakim & Haji Sakhidad	Main canal	X						31	2	X	31
21	Abdul Hakim & Haji Sakhidad	Main canal		X						3	X	
22	Nematullah	Main canal	X						41	4	X	41
23	Nematullah	Main canal		X						5	X	
24	Haikal	Main canal			100							
25	Haikal	Main canal					X					
26	Water access pts	Main canal					X			6	X	

Note: Grey shaded rows denote community-requested infrastructure not selected for inclusion in the RSP proposed civil works

**Table 4: RSP Sharawan, Tree Removal Survey Data**

<b>RSP Shahrawan</b>		
<b>Construction site</b>	<b>Trees to be removed</b>	<b>Type number</b>
Offtake Amanullah	0	
Offtake Baghak 2	0	
Offtake Konchi	0	
Offtake Eshan Saeed	20	Willow
Offtake Haji Musa	30	Willow
Offtake Haji Abdul Qayum	100	Willow saplings
Offtake Abil Ariq	0	
<b>Total</b>	<b>150</b>	

**Table 5: RSP Seyaab, Tree Removal Survey Data**

<b>RSP Seyaab – Trees to be removed during site preparation</b>		
<b>Construction site</b>	<b>Trees to be removed</b>	<b>Type number</b>
Keshim Bazar Intake	45	Willow saplings
Qomandan Zarin Offtake	20	Willow
Haji Wali Offtake	50	Willow
Pul Seyab Dare Hairatan Offtake	30	Willow
Ghara dara	0	
<b>Total</b>	<b>145</b>	

**Table 6: RSP Laqi, Tree Removal Survey Data**

<b>RSP Laqi - Trees to be removed during site preparation</b>		
<b>Construction site</b>	<b>Trees to be removed</b>	<b>Type number</b>
Sarband	0	
Haji Hakim	5	Willow
Haji Sakhi Dad	6	Willow
Nematullah	40	Willow
<b>Total</b>	<b>51</b>	

Table 7: Summary of Mitigation Measures

Project activity	Potential impact	Proposed mitigation	Institutional responsibility	Cost estimates
<b>Pre-construction</b>				
Finalize RSP designs	Omission from designs of water access points agreed with local communities	Incorporate water access points agreed with local communities into SP designs	MEW PMO & design consultant (design engineer)	Included in MEW PMO staff & design & support consultant costs
Procure construction services	Deficient/failed contractor implementation of construction-phase mitigation measures	Incorporate standard construction contract environmental safeguard clauses (IEE Appendix 9) and EMP into tender documents	MEW PMO & design & support consultant (procurement expert)	Included in MEW PMO staff & design & support consultant costs
Commence construction	Non-compliance with legal requirement for environmental clearance	Prepare and submit environmental clearance application to NEPA for each RSP. Track and respond to NEPA queries	MEW PMO	MEW PMO staff costs
Source quarried materials	Landslides, erosion, sedimentation, landform/landscape/viewshed degradation at/near quarry sites	Investigate and accept/reject commercial quarries / proposed RSP local quarry sites for acceptable environmental impacts	MEW PMO, PIO & construction contractors	Included in MEW PMO & PIO staff costs & construction contractor costs
Commence excavation	Disturbance, damage, loss/theft of physical cultural resources	Prior to commencing excavation at any location, an archaeologist will inspect the excavation sites, and based on the findings, undertake rescue archaeology and/or monitor excavation activities as needed		
<b>Construction</b>				
Construction site clearance including tree removal	Loss of ecological services and aesthetic value of trees removed from construction sites	Afforestation - tree plantation	MEW PMO, PIO & construction contractors	Included in MEW PMO & PIO staff costs & cost of civil works
Excavation	Landscape alteration, canal sedimentation, and water pollution from improperly managed excavation spoil	Select and manage soil disposal sites, in consultation with community		
Canal rehabilitation and upgrading	Opportunity to construct water access points agreed by local communities foregone	Construct water access points agreed with local communities		
Canal rehabilitation and upgrading	Temporary disruption of irrigation water supplies, or blockage of route ways	Temporary irrigation channels or roads/paths. Works prioritized, where possible in late autumn/winter		
Construction roads	Crop damage from temporary construction roads	Community consultation re. road siting and timing. If significant impact, compensation to APs		
Operation of vehicles & equipment; generation	Excessive noise, dust, air / water pollution, fuel/oil spills, pollution from	Routine construction housekeeping measures per contractor SEMP		

**Table 7: Summary of Mitigation Measures**

<b>Project activity</b>	<b>Potential impact</b>	<b>Proposed mitigation</b>	<b>Institutional responsibility</b>	<b>Cost estimates</b>
of liquid and solid waste	improper liquid/solid waste disposal			
Borrow pits and redundant canals	Landscape disruption if left unfilled post-construction	Pits and redundant canals filled in		

Table 7: Summary of Mitigation Measures

Project activity	Potential impact	Proposed mitigation	Institutional responsibility	Cost estimates
<b>Operation and maintenance</b>				
Operation and maintenance of improved irrigation infrastructure	Suboptimal irrigation and agricultural benefits	Establish and strengthen WUAs/IAs and provide training on O&M and improved management of water	MEW PMO SBAs WUAs MAIL PMO DAILs IAs	Included in MEW & MAIL staff costs
Increased cropping intensity and input use	Environmental contamination from excessive pesticide and fertilizer use	Training provided to IAs on optimal application and use of pesticides and fertilisers	DAILs, IAs	
Construction site clearance including tree removal	Loss of ecological services and aesthetic value of trees removed from construction services	Afforestation – care and maintenance of tree plantations (ongoing watering, fertilizing, protecting from damage of afforested trees while initial saplings grown into mature trees)	MEW PMO & PIOs WUAs MAIL PMO & PIOs DAILs IAs	

**Table 8: Summary of Monitoring Requirements**

Mitigation measure	Monitored parameters	Location	Measurements	Frequency	Responsibility	Cost
<b>Pre-construction</b>						
Incorporate water access points agreed with local communities into SP designs	Designs	FSDC (MEW) / Contractor (MAIL) office	Check designs against list of water access points	Once, before signing off on designs	MEW PMO	Included in design & support consultant costs
Incorporate standard construction contract environmental safeguard clauses (IEE Appendix 9) and EMP into tender documents	Tender documents	FSDC (MEW) / Contractor (MAIL) office	Check tender documents for required inclusions	Once, before signing off on tender documents		
Prepare and submit environmental clearance application to NEPA for each RSP. Track and respond to NEPA queries	Environmental clearance certificate progress	FSDC (MEW) / Contractor (MAIL) office	Query status of applications	As needed to ensure certificates process continues to progress such that they are obtained prior to planned construction start dates	MEW PMO	Included in MEW staff costs
Investigate and accept/reject commercial quarries / proposed RSP local quarry sites for acceptable environmental impacts	Indications of erosion, landslides, landform & viewshed damage	Candidate quarry sites	Photographs	Once for each site, prior to quarry selection	MEW PIOs & construction contractors	Included in MEW staff & construction contractor costs
Archaeology inspection of excavation sites, rescue archaeology / excavation monitoring as required, prior to commencing excavation	Archaeology test pit(s)	Excavation sites	Presence/absence of archaeological findings	Once at each site, prior to commencing excavation	Archaeology expert, respective ministry's design & support consultant	Included in MEW design & support consultant's staff costs
<b>Construction</b>						
Afforestation - tree plantation	Number of trees planted; trees surviving/died; tree growth	Community-identified afforestation locations	Photographs; inventory; girth/height measurements; visual assessment	Included in construction supervisor site visits	MEW PMO, PIO & construction contractors	Included in MEW staff & construction contractor costs
Select and manage soil disposal sites, in consultation with community	Soil disposal	Soil disposal sites	Photographs	Included in construction supervisor site visits		
Construct water access points agreed with local communities	Construction of access points per design	Design access point locations	Photographs	Included in construction supervisor site visits		
Temporary irrigation channels or roads/paths. Works prioritized, where possible in late autumn/winter	Water availability for farmers	Construction sites	Photographs; farmer interviews	Included in construction supervisor site visits		



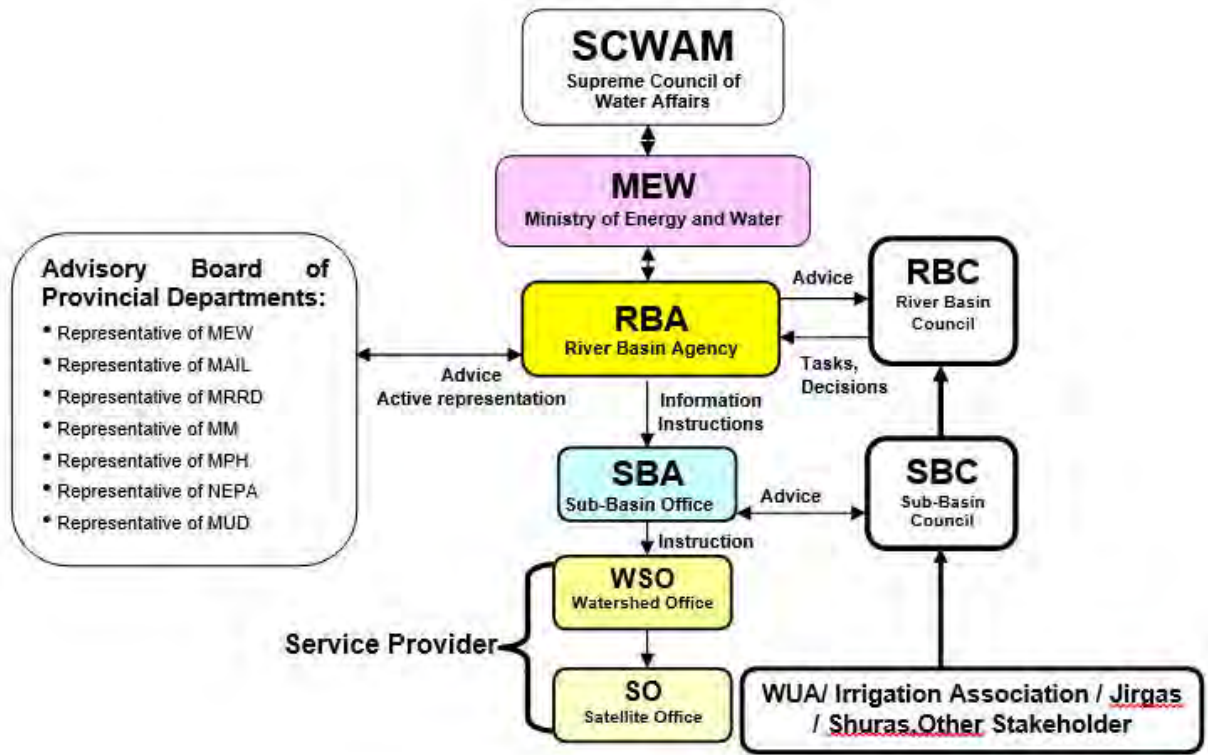
**Table 8: Summary of Monitoring Requirements**

<b>Mitigation measure</b>	<b>Monitored parameters</b>	<b>Location</b>	<b>Measurements</b>	<b>Frequency</b>	<b>Responsibility</b>	<b>Cost</b>
Community consultation re. road siting and timing. If significant impact, compensation to APs	Crop damage	Construction roads	Photographs, farmer interviews	Included in construction supervisor site visits		
Routine construction housekeeping measures per contractor SEMP	Noise, dust, air pollution, fuel/oil spills, improper liquid/solid waste disposal	Construction sites	Visual assessment of dust, liquid / solid found outside proper receptacles; vehicle inspections to check exhaust and noise	Included in construction supervisor site visits		
Pits and redundant canals filled in	Pits and redundant canals	Borrow pits and redundant canals	Photographs	Included in construction supervisor site visits		
<b>Operation and maintenance</b>						
Establish and strengthen RSP WUAs and IAs re: (i) improved management of water, soil, & agricultural pests / pesticides; increased resilience to climate & other variability and (ii) participatory monitoring	WUA and IA establishment status, training plans; date, place, type of training, trainers, participants vs vs plan targets	Training locations per training plan	Photographs, training sign-in sheets, training reports	As/when training occurs	MEW PMO RBA SBA MAIL PMO DAILs MEW design & support consultant	Included in MEW & MAIL staff costs
Implementation of improved management of water, soil, & agricultural pests / pesticides; increased resilience to climate & other variability	Irrigation flows, crops grown, yields, soil quality, pesticide use, agricultural pests	Monitored locations in agricultural fields	Irrigation records, ; participatory / farmer self-reporting of other parameters	Monthly		
Afforestation – care and maintenance of tree plantations (ongoing watering, fertilizing, protecting from damage of afforested trees while initial saplings grown into mature trees)	Trees surviving/died; tree growth	Afforested locations	Photographs; inventory; girth / height measurements; visual assessment	Included in WUA, IA or CMA monitoring workplans	MEW PMO RBA SBA WUAs MAIL PMO DAILs IAs CMA MEW design & support consultants	Included in (i) MEW & MAIL staff costs (ii) WUA, IA or CMA budgets

**Table 9: Concerns Expressed in RSP Public Consultation Men Meetings**

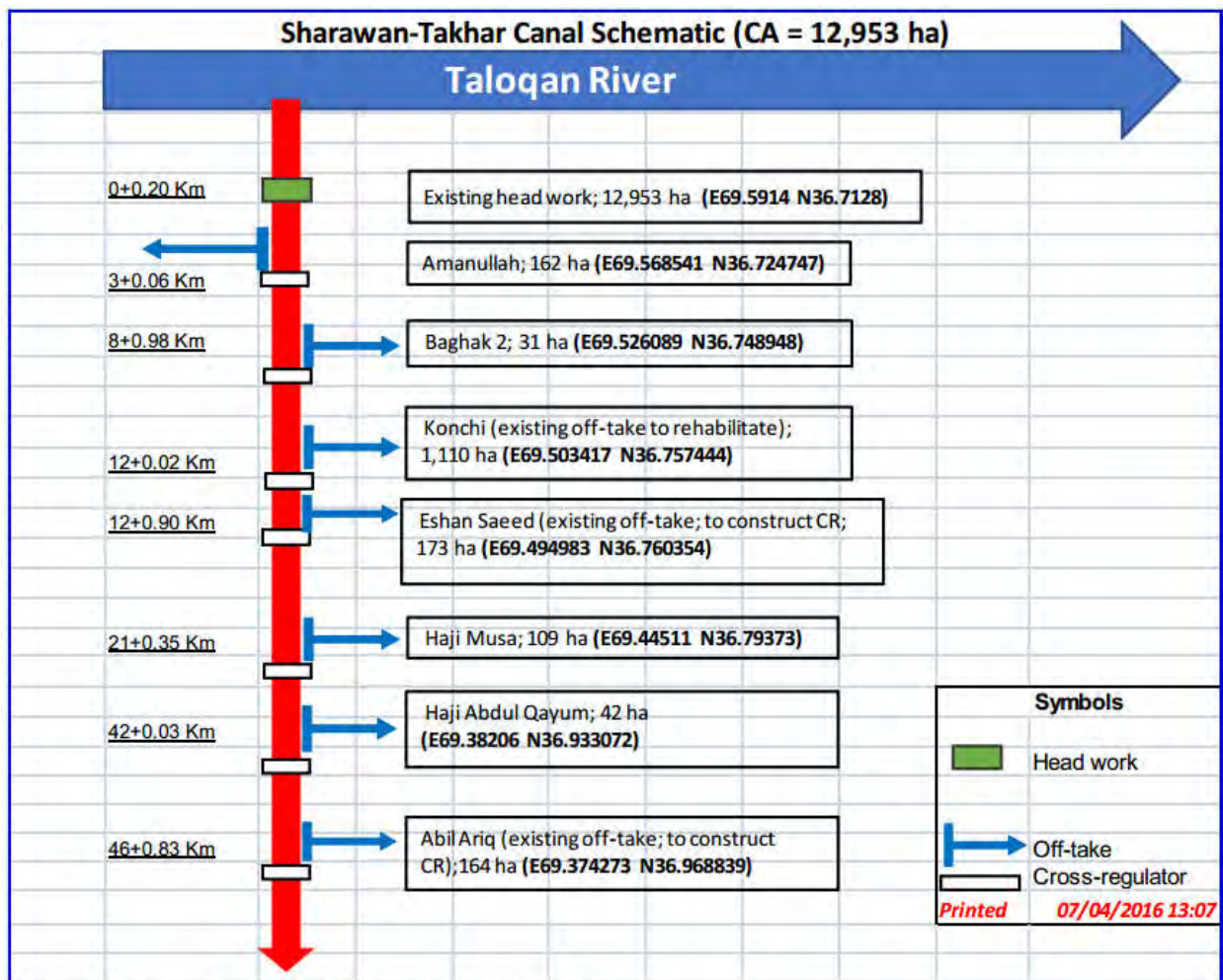
Concern	Freq	Sharawan			Seyaab			Laqi		
		Head	Mid	Tail	Head	Mid	Tail	Head	Mid	Tail
Don't change canal alignment	8	X	X		X	X	X	X	X	X
Include community structures in the design (animal water and clothes washing points, foot & vehicle bridges)	7	X	X		X	X		X	X	X
Offtake problems	5			X	X			X	X	X
Canal erosion	5			X	X			X	X	X
Intake/headworks problems	4				X			X	X	X
Land slides into canal	4				X			X	X	X
Land & water levels misaligned in some places	2			X					X	
Don't interrupt irrigation water supply during construction	2	X	X							
Compensate farmers for crop damage due to temporary construction roads	2	X	X							
Hire unskilled laborers locally	2	X	X							
Provide a spillway at the headworks for flood control	1									X
Wash problems	1				X					
Water losses	1			X						
Contractor should work according to design	1							X		
Support tree plantation to compensate for tree removal at construction sites	1									X

**Figure 1: MEW Organogram Post 2011 Reorganization Showing Relationships With Other Water Management Institutions**



Source: Landell-Mills. (2013). *Panj-Amu river basin profile*. Afghanistan Water Resources Development (AWARD) Technical Assistance Project – Technical and Implementation Support Consultancy (TISC). Grant No. TF093637-AF / Contract No. MEW/957/QBS.

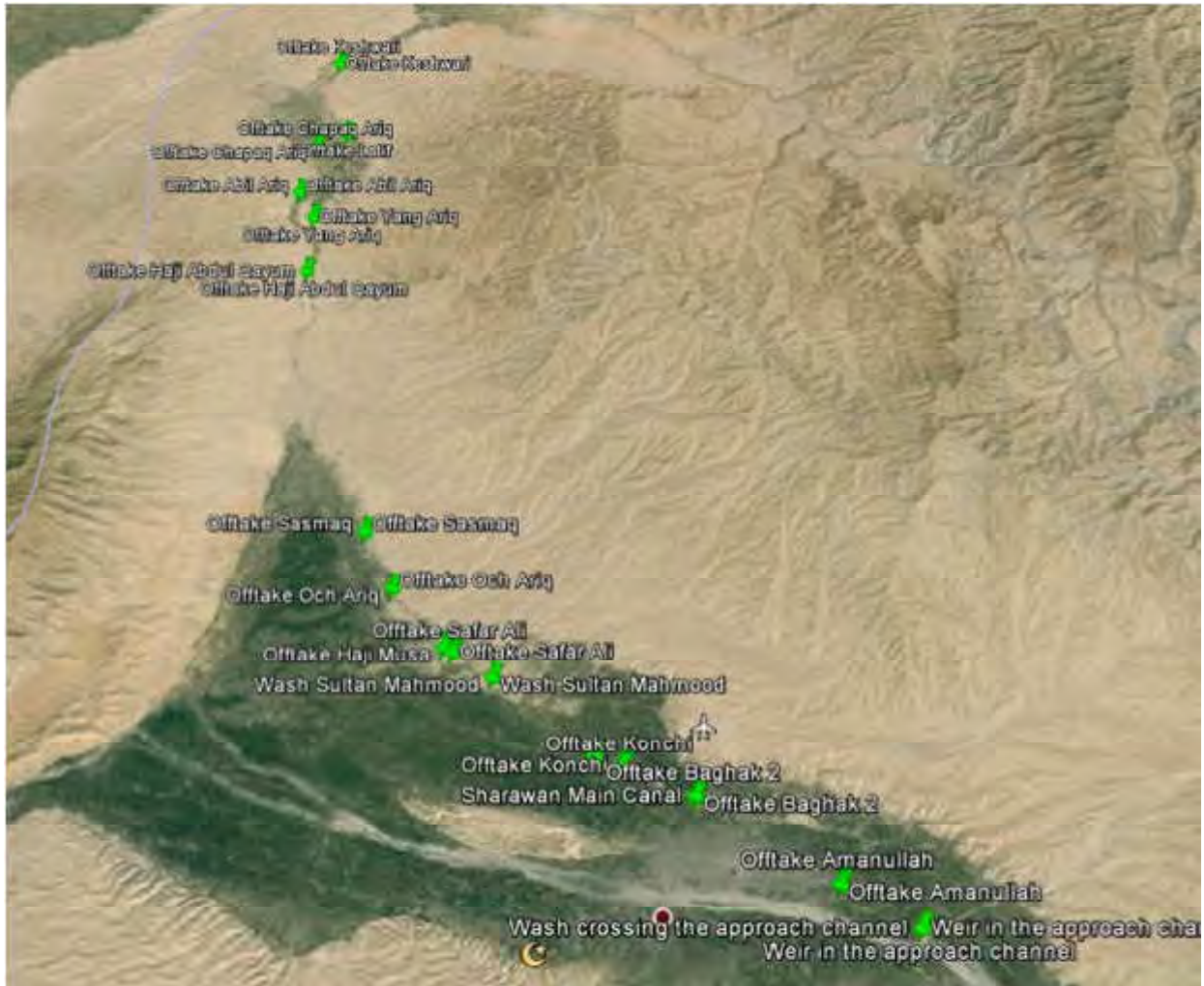
Figure 2: RSP Sharawan, Selected Civil Works Schematic



Note: water access points not shown in the schematic.

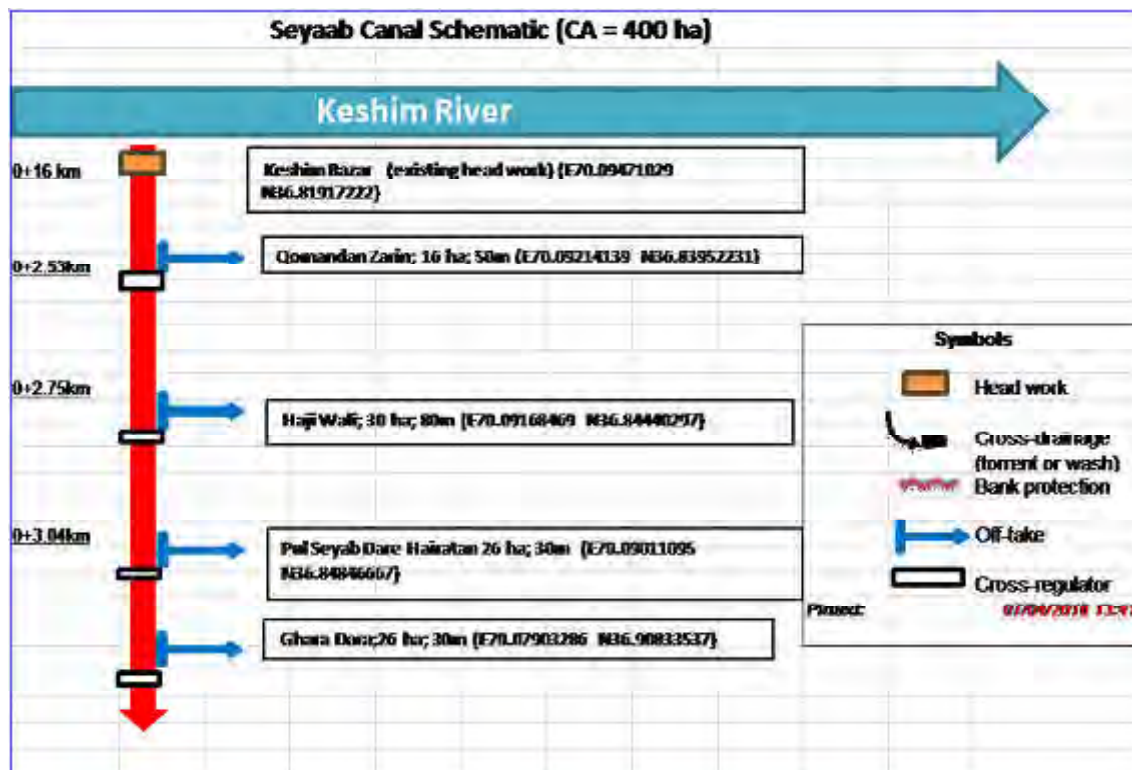
Source: PARBP feasibility study.

**Figure 3: RSP Sharawan, Selected Civil Works Superimposed On Satellite Image**



Source: LARP RSP Sharawan, PARBP PPTA

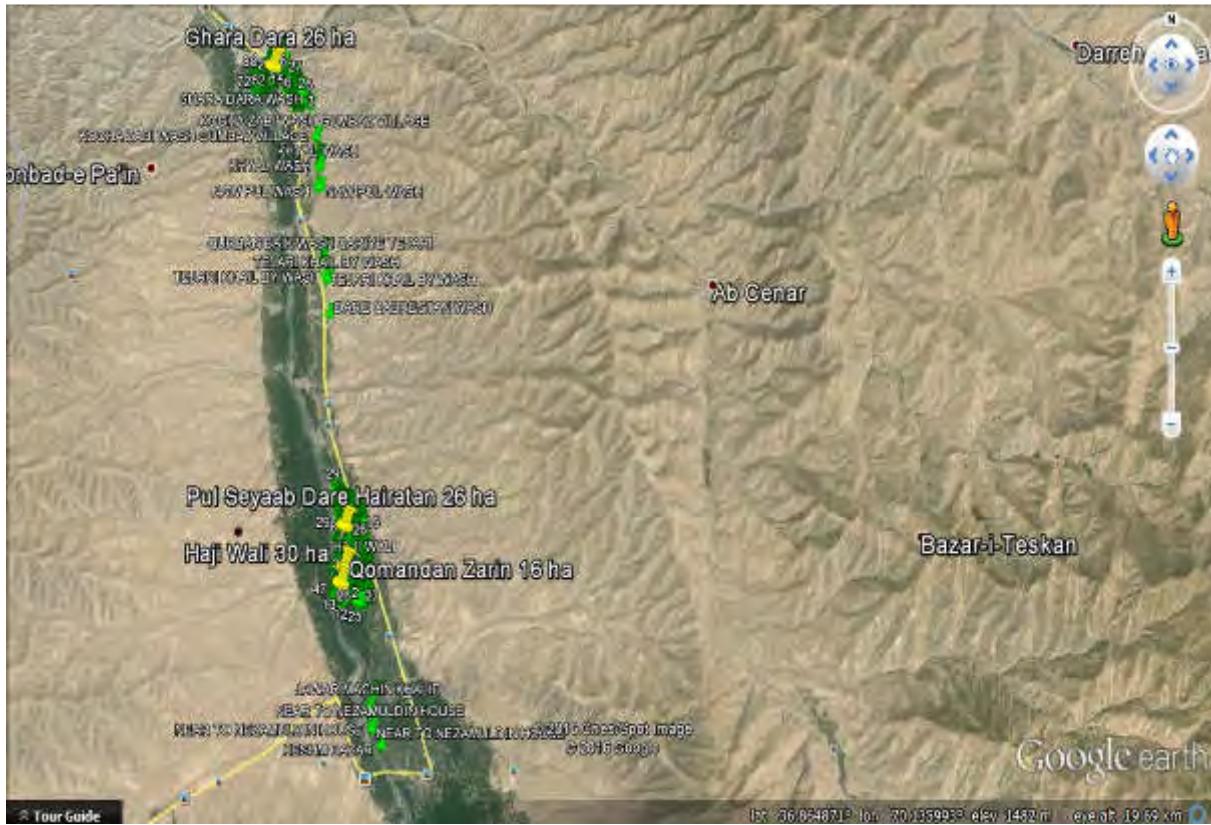
Figure 4: RSP Seyaab, Selected Civil Works Schematic



Source: PARBP feasibility study

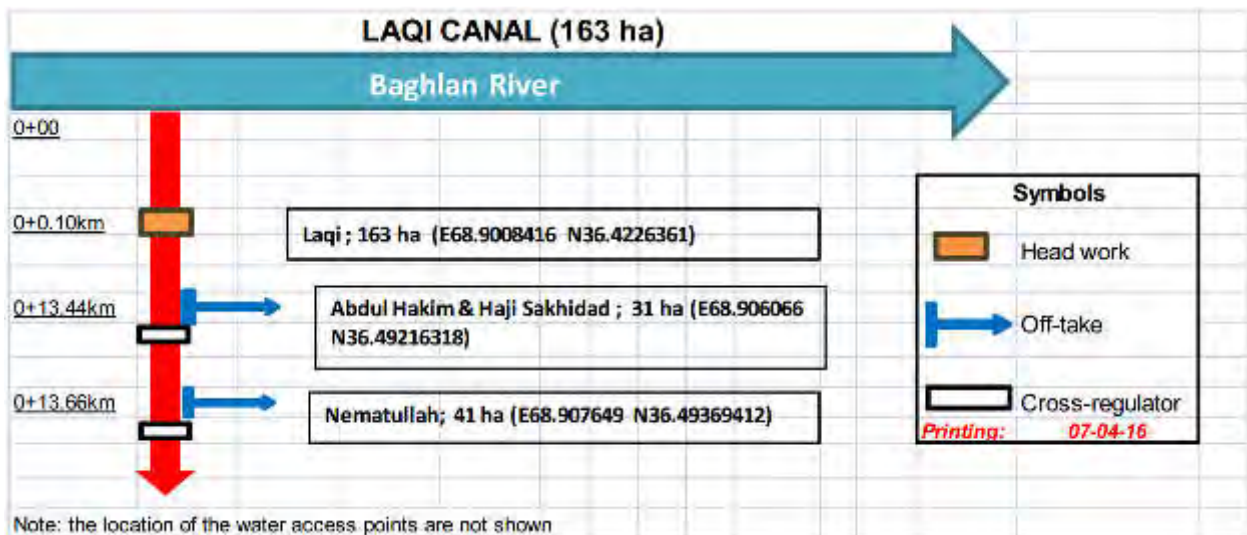


Figure 5: RSP Seyaab, Selected Civil Works Superimposed On Satellite Image



Source: PARBP feasibility study

Figure 6: RSP Laqi, Selected Civil Works Schematic



Source: PARBP feasibility study

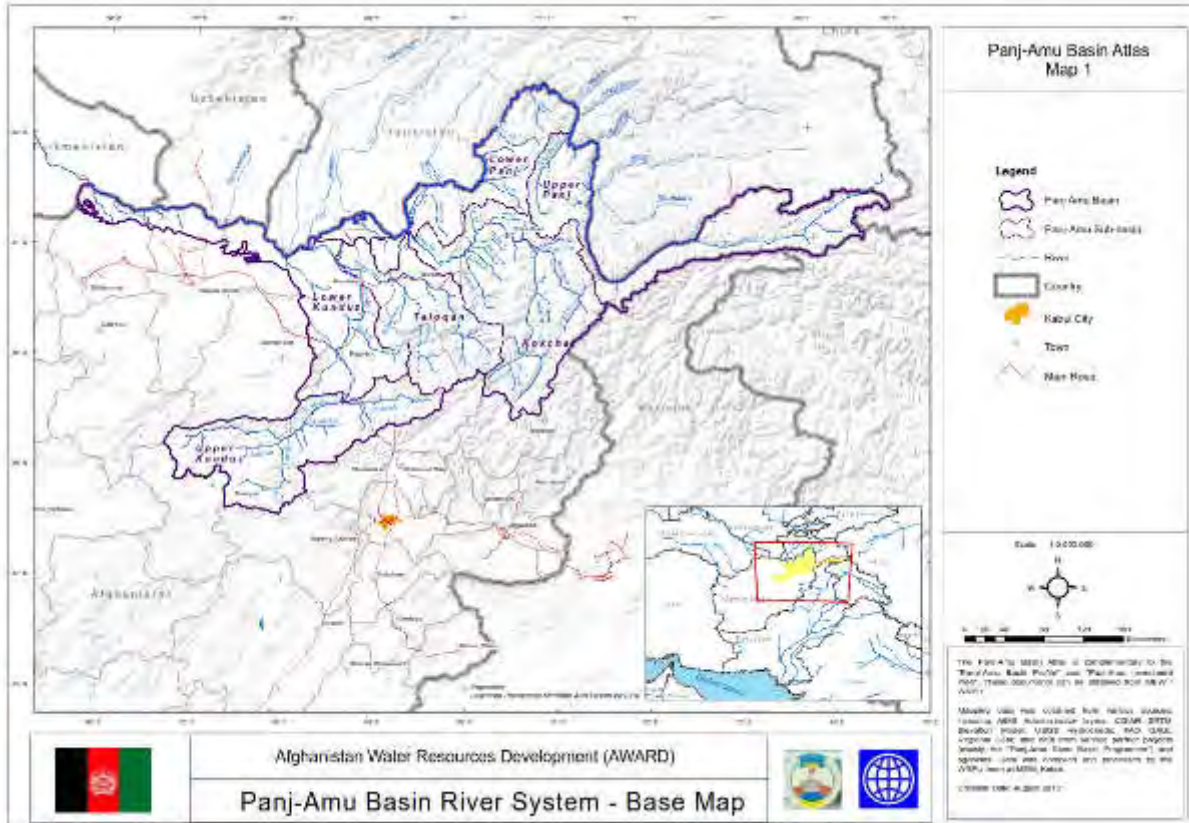
Figure 7: RSP Laqi, Selected Civil Works Superimposed On Satellite Image



Source: LARP RSP Laqi, PARBP PPTA

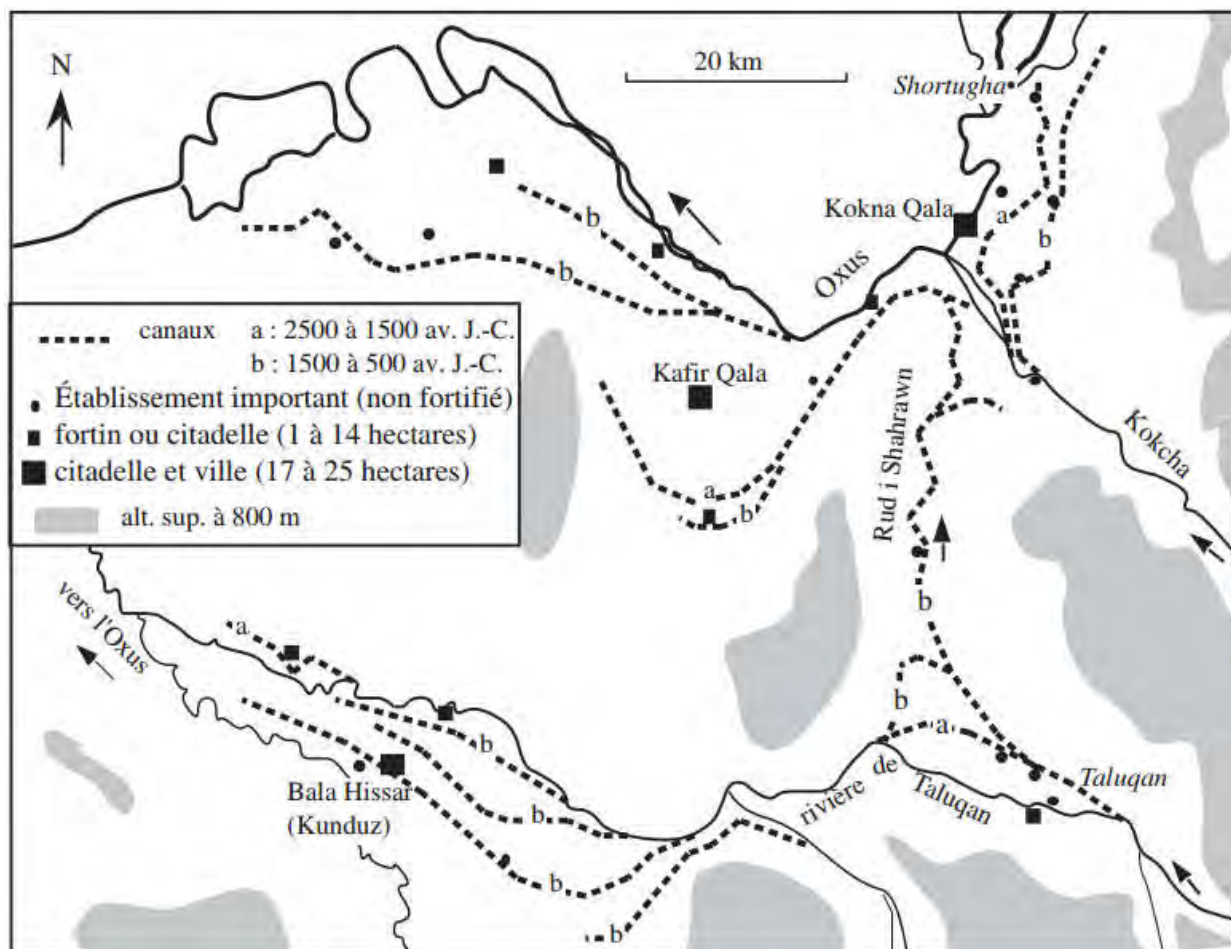


Figure 8: Afghanistan Panj-Amu Basin and Its Sub-Basins



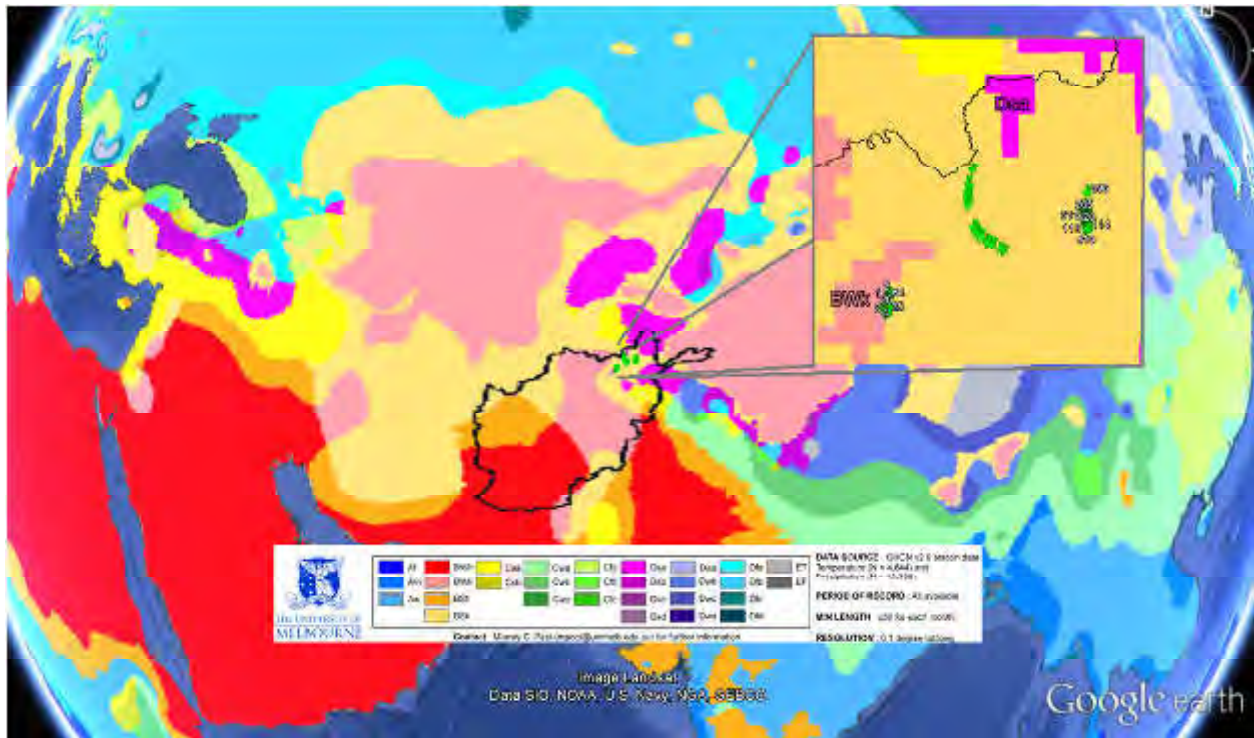
Source: Afghanistan Water Resources Development (AWARD)

Figure 9: Archaeological Dating of Irrigation Canals, Panj-Amu Basin



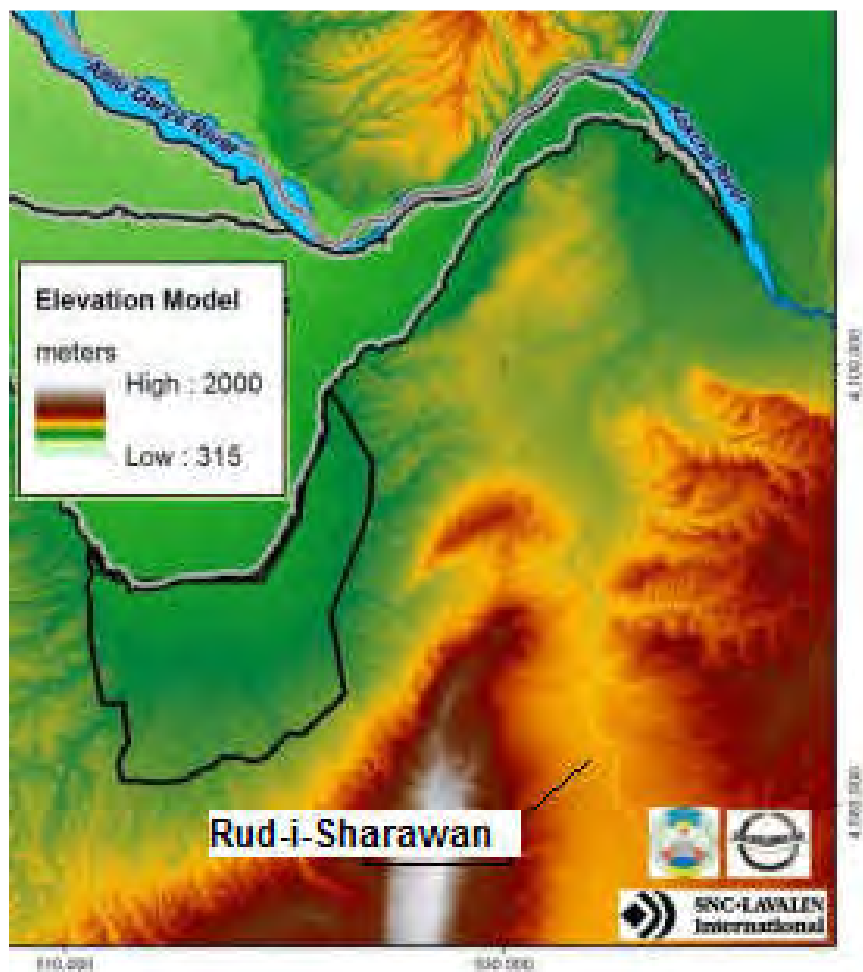
Source: Figure 2.20. Violet, Pierre-Louis. 2004. *L'hydraulique dans les civilisations anciennes - 5000 ans d'histoire*. Paris: Presse des Ponts. [http://graduateschool.paristech.fr/Files/001\\_130.pdf](http://graduateschool.paristech.fr/Files/001_130.pdf)

**Figure 10: Köppen Climate Zones, Panj-Amu Basin Showing RSP Locations**



Source: Peel, M. C., Finlayson, B. L., & McMahon, T. A. (2007). Updated world map of the Köppen-Geiger climate classification. *Hydrol. Earth Syst. Sci.*, 11, 1633–1644.

Figure 11: Rud-i-Sharawan Inter-Basin Link Section, False-Color Elevation Model



Source: SNC-Lavalin (2016). *Initial Environmental Examination, Lower Kokcha Irrigation Project, ADB Water Resources Development Project Tranche 2*. P. 116



## APPENDIX 1: RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST, RSP SHARAWAN

**Instructions:**

- (i) The Project team completes this checklist for each potential subproject to support its classification as ADB environment category A, B, or C.
- (ii) The checklist focuses on environmental issues and concerns. Social screening instruments should be used to screen for social dimensions such as involuntary resettlement, indigenous peoples, poverty reduction, and gender.
- (iii) Complete checklist items for the “without mitigation” case to identify potential environmental impacts. Document potential mitigation measures in the “remarks” column.

**Subproject name:**

RSP Sharawan

**Subproject location:**

Taloqan, Baharak, and Khoja Ghar districts, Takhar province

Screening Questions	Yes	No	Remarks
<b>A. Project Siting</b>			
Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Protected Area		N	
▪ Wetland		N	No wetland in SP area.
▪ Mangrove		N	
▪ Estuarine		N	
▪ Buffer zone of protected area		N	
▪ Special area for protecting biodiversity		N	
<b>B. Potential Environmental Impacts</b>			
Will the Project cause...			
▪ loss of precious ecological values (e.g. result of encroachment into forests/swamplands or historical/cultural buildings/areas, disruption of hydrology of natural waterways, regional flooding, and drainage hazards)?		N	
▪ conflicts in water supply rights and related social conflicts?		N	RSP is expected to enhance local capacity and physical assets to mitigate water and related social conflicts.
▪ impediments to movements of people and animals?		N	RSP infrastructure will not impede movement
▪ potential ecological problems due to increased soil erosion and siltation, leading to decreased stream capacity?	Y		Potential RSP impacts: (i) construction phase – during excavation & operation of diversion canals built to avoid irrigation interruption and construction in the dry. (ii) Sedimentation from washes occurs; will not be addressed by RSP



Screening Questions	Yes	No	Remarks
▪ Insufficient drainage leading to salinity intrusion?		N	NA. [This impact refers to vertical salinity intrusion from groundwater when drainage is insufficient. See below for salinity impacts in coastal/estuarine etc settings.]
▪ over pumping of groundwater, leading to salinization and ground subsidence?		N	Small volumes of groundwater are withdrawn for domestic use. GW irrigation is minimal or nonexistent.
▪ impairment of downstream water quality and therefore, impairment of downstream beneficial uses of water?		N	RSP non-physical interventions aim to increase water volumes released to downstream areas and users.
▪ dislocation or involuntary resettlement of people?	Y		No resettlement expected. If privately-owned trees (on publicly- or privately-owned land) are removed during site preparation, owners will be compensated
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		N	
▪ potential social conflicts arising from land tenure and land use issues?		N	Land ownership disputes are not occurring or expected in this area. Land registration documentation in this area dates to >40 years ago and is functioning relatively well.
▪ soil erosion before compaction and lining of canals?		N	This impact occurs when canals are resectioned and compaction/lining is delayed. No resectioning is proposed in this RSP
▪ noise from construction equipment?	Y		If, when, and where earth-moving equipment and other vehicles are used. Manual labor and tools predominate
▪ dust during construction?	Y		If, when, and where earth-moving equipment and other vehicles are used. Manual labor and tools predominate
▪ waterlogging and soil salinization due to inadequate drainage and farm management?		N	RSP area not affected by these problems
▪ leaching of soil nutrients and changes in soil characteristics due to excessive application of irrigation water?		N	
▪ reduction of downstream water supply during peak seasons?		N	Non-physical interventions aim to improve water supply to tail areas
▪ soil pollution, polluted farm runoff and groundwater, and public health risks due to excessive application of fertilizers and pesticides?		N	
▪ soil erosion (furrow, surface)?		N	
▪ scouring of canals?		N	Happening now in some canal reaches. RSP will not change this – traditional methods will continue to be used to

Screening Questions	Yes	No	Remarks
			address it
<ul style="list-style-type: none"> <li>▪ clogging of canals by sediments?</li> </ul>		N	Happening now in some canal reaches. RSP will not change this – traditional methods will continue to be used to address it
<ul style="list-style-type: none"> <li>▪ clogging of canals by weeds?</li> </ul>		N	
<ul style="list-style-type: none"> <li>▪ seawater intrusion into downstream freshwater systems?</li> </ul>		N	
<ul style="list-style-type: none"> <li>▪ introduction of increase in incidence of waterborne or water related diseases?</li> </ul>		N	
<ul style="list-style-type: none"> <li>▪ dangers to a safe and healthy working environment due to physical, chemical and biological hazards during project construction and operation?</li> </ul>	Y		Most work will be done using manual labor and tools, but limited amounts of equipment and vehicle related air pollution is possible. Fuel and lubricants; welding materials; concrete materials. Solid and liquid construction and domestic waste. Most will be away from settled areas
<ul style="list-style-type: none"> <li>▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?</li> </ul>		N	Unskilled labor will be recruited locally. Small numbers of skilled labor from outside the area may be needed
<ul style="list-style-type: none"> <li>▪ social conflicts if workers from other regions or countries are hired?</li> </ul>		N	See above. WUA rules require unskilled labor hired locally, contractor requirement. Labor can be allocated on a rotating basis so that more families benefit
<ul style="list-style-type: none"> <li>▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?</li> </ul>	Y		Limited amounts of equipment and vehicle fuel and lubricants.
<ul style="list-style-type: none"> <li>▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., irrigation dams) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?</li> </ul>	Y		Unexploded ordinance (UXO) risks to workers and community members during construction and O&M will be mitigated by requiring contractors to obtain preconstruction mine clearance certification.



## APPENDIX 2: RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST, RSP SEYAAB

### Instructions:

- (i) The Project team completes this checklist for each potential subproject to support its classification as ADB environment category A, B, or C.
- (ii) The checklist focuses on environmental issues and concerns. Social screening instruments should be used to screen for social dimensions such as involuntary resettlement, indigenous peoples, poverty reduction, and gender.
- (iii) Complete checklist items for the “without mitigation” case to identify potential environmental impacts. Document potential mitigation measures in the “remarks” column.

**Subproject name:**

RSP Seyaab

**Subproject location:**

Keshim district, Badakhshan province

Screening Questions	Yes	No	Remarks
<b>C. Project Siting</b>			
Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Protected Area		N	
▪ Wetland		N	No wetland in RSP area.
▪ Mangrove		N	
▪ Estuarine		N	
▪ Buffer zone of protected area		N	
▪ Special area for protecting biodiversity		N	
<b>D. Potential Environmental Impacts</b>			
Will the Project cause...			
▪ loss of precious ecological values (e.g. result of encroachment into forests/swamplands or historical/cultural buildings/areas, disruption of hydrology of natural waterways, regional flooding, and drainage hazards)?		N	
▪ conflicts in water supply rights and related social conflicts?		N	RSP is expected to enhance local capacity and physical assets to mitigate water and related social conflicts.
▪ impediments to movements of people and animals?		N	RSP infrastructure will not impede movement
▪ potential ecological problems due to increased soil erosion and siltation, leading to decreased stream capacity?	Y		Potential RSP impacts: (i) construction phase – during excavation & operation of diversion canals built to avoid irrigation interruption and construction in the dry. (ii) RSP will reduce sedimentation from washes Not an RSP impact, but landslides

Screening Questions	Yes	No	Remarks
			sometimes bring sediment into portions of canals sited at the foot of unstable slopes.
<ul style="list-style-type: none"> <li>Insufficient drainage leading to salinity intrusion?</li> </ul>		N	NA. This impact presumably refers to salinity intrusion changes due to reduced flushing (ie rather than insufficient drainage per se) in coastal/estuarine etc settings.
<ul style="list-style-type: none"> <li>over pumping of groundwater, leading to salinization and ground subsidence?</li> </ul>		N	Small volumes of groundwater are withdrawn for domestic use. GW irrigation is minimal or nonexistent.
<ul style="list-style-type: none"> <li>impairment of downstream water quality and therefore, impairment of downstream beneficial uses of water?</li> </ul>		N	RSP combined physical and non-physical interventions aim to increase water volumes released to downstream areas and users.
<ul style="list-style-type: none"> <li>dislocation or involuntary resettlement of people?</li> </ul>	Y		No resettlement expected  If privately-owned trees (on publicly- or privately-owned land) are removed during site preparation, owners will be compensated
<ul style="list-style-type: none"> <li>disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?</li> </ul>		N	
<ul style="list-style-type: none"> <li>potential social conflicts arising from land tenure and land use issues?</li> </ul>		N	Land ownership disputes are not occurring or expected in this area. Land registration documentation in this area dates to >40 years ago and is functioning relatively well.
<ul style="list-style-type: none"> <li>soil erosion before compaction and lining of canals?</li> </ul>		N	This impact occurs when canals are resectioned and compaction/lining is delayed. No resectioning is proposed in this RSP
<ul style="list-style-type: none"> <li>noise from construction equipment?</li> </ul>	Y		From earth-moving equipment and other vehicles.
<ul style="list-style-type: none"> <li>dust during construction?</li> </ul>	Y		From earth-moving equipment and other vehicles
<ul style="list-style-type: none"> <li>waterlogging and soil salinization due to inadequate drainage and farm management?</li> </ul>		N	RSP area not affected by these problems
<ul style="list-style-type: none"> <li>leaching of soil nutrients and changes in soil characteristics due to excessive application of irrigation water?</li> </ul>		N	
<ul style="list-style-type: none"> <li>reduction of downstream water supply during peak seasons?</li> </ul>		N	Physical and non-physical interventions expected to improve water supply to tail areas
<ul style="list-style-type: none"> <li>soil pollution, polluted farm runoff and groundwater, and public health risks due to excessive application of fertilizers and pesticides?</li> </ul>		N	
<ul style="list-style-type: none"> <li>soil erosion (furrow, surface)?</li> </ul>		N	

Screening Questions	Yes	No	Remarks
▪ scouring of canals?		N	
▪ clogging of canals by sediments?		N	
▪ clogging of canals by weeds?		N	
▪ seawater intrusion into downstream freshwater systems?		N	
▪ introduction of increase in incidence of waterborne or water related diseases?		N	
▪ dangers to a safe and healthy working environment due to physical, chemical and biological hazards during project construction and operation?	Y		Most work will be done using manual labor and tools, but limited amounts of equipment and vehicle related air pollution is possible. Fuel and lubricants; welding materials; concrete materials. Solid and liquid construction and domestic waste. Most will be away from settled areas
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		N	Unskilled labor will be recruited locally. Small numbers of skilled labor from outside the area may be needed
▪ social conflicts if workers from other regions or countries are hired?		N	See above. WUA rules require unskilled labor hired locally, contractor requirement. Labor can be allocated on a rotating basis so that more families benefit
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	Y		Limited amounts of equipment and vehicle fuel and lubricants.
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., irrigation dams) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?	Y		Safety infrastructure: large structure designs will include fences/gates, handrails etc. Unexploded ordinance: risks to workers and community members during construction and O&M. Mitigation- preconstruction mine clearance certification.

### APPENDIX 3: RAPID ENVIRONMENTAL ASSESSMENT CHECKLIST, RSP LAQI

**Instructions:**

- (i) The Project team completes this checklist for each potential subproject to support its classification as ADB environment category A, B, or C.
- (ii) The checklist focuses on environmental issues and concerns. Social screening instruments should be used to screen for social dimensions such as involuntary resettlement, indigenous peoples, poverty reduction, and gender.
- (iii) Complete checklist items for the “without mitigation” case to identify potential environmental impacts. Document potential mitigation measures in the “remarks” column.

**Subproject name:**

RSP Laqi

**Subproject location:**

Aliabad district, Kunduz province

Screening Questions	Yes	No	Remarks
<b>E. Project Siting</b>			
Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Protected Area		N	
▪ Wetland		N	No wetland in RSP area.
▪ Mangrove		N	
▪ Estuarine		N	
▪ Buffer zone of protected area		N	
▪ Special area for protecting biodiversity		N	
<b>F. Potential Environmental Impacts</b>			
Will the Project cause...			
▪ loss of precious ecological values (e.g. result of encroachment into forests/swamplands or historical/cultural buildings/areas, disruption of hydrology of natural waterways, regional flooding, and drainage hazards)?		N	
▪ conflicts in water supply rights and related social conflicts?		N	RSP is expected to enhance local capacity and physical assets to mitigate water and related social conflicts.
▪ impediments to movements of people and animals?		N	RSP infrastructure will not impede movement
▪ potential ecological problems due to increased soil erosion and siltation, leading to decreased stream capacity?	Y		Potential RSP impacts: (i) construction phase – during excavation & operation of diversion canals built to avoid irrigation interruption and construction in the dry. (ii) RSP will reduce sedimentation from washes Not an RSP impact, but Landslides

			sometimes bring sediment into portions of canals sited at the foot of unstable slopes.
▪ Insufficient drainage leading to salinity intrusion?		<b>N</b>	NA. This impact presumably refers to salinity intrusion changes due to reduced flushing (ie rather than insufficient drainage per se) in coastal/estuarine etc settings.
▪ over pumping of groundwater, leading to salinization and ground subsidence?		<b>N</b>	Small volumes of groundwater are withdrawn for domestic use. GW irrigation is minimal or nonexistent.
▪ impairment of downstream water quality and therefore, impairment of downstream beneficial uses of water?		<b>N</b>	RSP combined physical and non-physical interventions aim to increase water volumes released to downstream areas and users.
▪ dislocation or involuntary resettlement of people?	<b>Y</b>		No resettlement expected  If privately-owned trees (on publicly- or privately-owned land) are removed during site preparation, owners will be compensated
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		<b>N</b>	
▪ potential social conflicts arising from land tenure and land use issues?		<b>N</b>	Land ownership disputes are not occurring or expected in this area. Land registration documentation in this area dates to >40 years ago and is functioning relatively well.
▪ soil erosion before compaction and lining of canals?		<b>N</b>	This impact occurs when canals are resectioned and compaction/lining is delayed. No resectioning is proposed in this RSP
▪ noise from construction equipment?	<b>Y</b>		From earth-moving equipment and other vehicles.
▪ dust during construction?	<b>Y</b>		From earth-moving equipment and other vehicles
▪ waterlogging and soil salinization due to inadequate drainage and farm management?		<b>N</b>	RSP area not affected by these problems
▪ leaching of soil nutrients and changes in soil characteristics due to excessive application of irrigation water?		<b>N</b>	
▪ reduction of downstream water supply during peak seasons?		<b>N</b>	Physical and non-physical interventions expected to improve water supply to tail areas
▪ soil pollution, polluted farm runoff and groundwater, and public health risks due to excessive application of fertilizers and pesticides?		<b>N</b>	
▪ soil erosion (furrow, surface)?		<b>N</b>	
▪ scouring of canals?		<b>N</b>	

▪ clogging of canals by sediments?		<b>N</b>	
▪ clogging of canals by weeds?		<b>N</b>	
▪ seawater intrusion into downstream freshwater systems?		<b>N</b>	
▪ introduction of increase in incidence of waterborne or water related diseases?		<b>N</b>	
▪ dangers to a safe and healthy working environment due to physical, chemical and biological hazards during project construction and operation?	<b>Y</b>		Most work will be done using manual labor and tools, but limited amounts of equipment and vehicle related air pollution is possible. Fuel and lubricants; welding materials; concrete materials. Solid and liquid construction and domestic waste. Most will be away from settled areas
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		<b>N</b>	Unskilled labor will be recruited locally. Small numbers of skilled labor from outside the area may be needed
▪ social conflicts if workers from other regions or countries are hired?		<b>N</b>	See above. WUA rules require unskilled labor hired locally, contractor requirement. Labor can be allocated on a rotating basis so that more families benefit
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?	<b>Y</b>		Limited amounts of equipment and vehicle fuel and lubricants.
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., irrigation dams) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?	<b>Y</b>		Safety infrastructure: large structure designs will include fences/gates, handrails etc. Unexploded ordinance: risks to workers and community members during construction and O&M. Mitigation- preconstruction mine clearance certification.

## APPENDIX 4: RSP SHARAWAN – BENEFICIARY IDENTIFIED PROBLEM LOCATIONS AND POTENTIAL CIVIL WORKS SOLUTIONS

### A. Introduction

1. This Appendix presents (i) descriptions of each of the problem locations for which beneficiaries, in consultation with their SBA, requested civil works solutions; and (ii) the corresponding civil works solutions considered by the feasibility study consultants (summarized in Table 1 above and shown below in square brackets and italicized).

### B. Sedimentation in the Main Canal Immediately Below the Intake

2. Immediately downstream of the headwork, the 25 m wide main canal bed is silted up for 1000 m with mud and gravel from flash floods. *[Re-excavate canal, organized by WUAs.]*

### C. Main Canal Erosion and Low Banks

3. Beneficiary-identified locations and problems in this category, and the corresponding civil works solutions considered by the feasibility study consultants, are:
  - (i) At the headwork, wash flow outflanks the cross-drainage culvert protection walls in the flood season, bringing sediment and gravel into the culvert, ultimately blocking it and damaging agricultural land. *[Extend bank protection by 100 m.]*
  - (ii) Below Baghak 2, main canal banks are very low. *[Provide 200 m bank protection.]*
  - (iii) Below Konchi, both main canal banks are washed away. *[Provide bank protection.]* A bridge over the main canal that links 20 villages will be destroyed soon. *[Protection of non-water resources infrastructure from erosion is out of scope for MEW, MAIL, and thus the Project.]*
  - (iv) Below Qara Parchaw, overtopping is eroding both main canal banks. Currently sand bags are being used to reduce this. *[Provide bank protection for 700 m.]*
  - (v) At Safar Ali, seasonal floods and high discharge have destroyed the main canal banks, reducing canal capacity and causing downstream water shortages. *[Protect both canal banks for 200 m with gabions or stone masonry.]*
  - (vi) At Och Ariq Canal, flood water overtops the offtake, a three-way divider structure, causing bank erosion. *[Bank protection works would prevent this.]*
  - (vii) Upstream of Yangi Ariq Canal, existing bank protection is insufficient to prevent erosion of main canal banks. *[Additional bank protection is needed.]*
  - (viii) At Jelum Khor Canal, an offtake structure constructed by KRBP is being outflanked. Upstream of the structure, the main canal widened and its right bank was washed away, opening up the offtake wing wall joint with the main canal bank, through which flow now enters Jehlum Khor canal directly. *[Provide bank protection works.]*

#### D. Secondary Canal Erosion and Low Banks

4. Beneficiary-identified locations, problems, and civil works considered in this category are:<sup>50</sup>
  - (i) On Chapaq Ariq Canal, flooding damages this secondary canal's banks *[Bank protection for 200 m is needed.]*
  - (ii) On Jelum Khor Canal, at a location where this secondary canal runs above and parallel to the main canal, the secondary canal left bank has been destroyed by floods. *[Provide bank protection works.]*

#### E. Inadequate Irrigation Flow Control at Offtakes on Main Canal

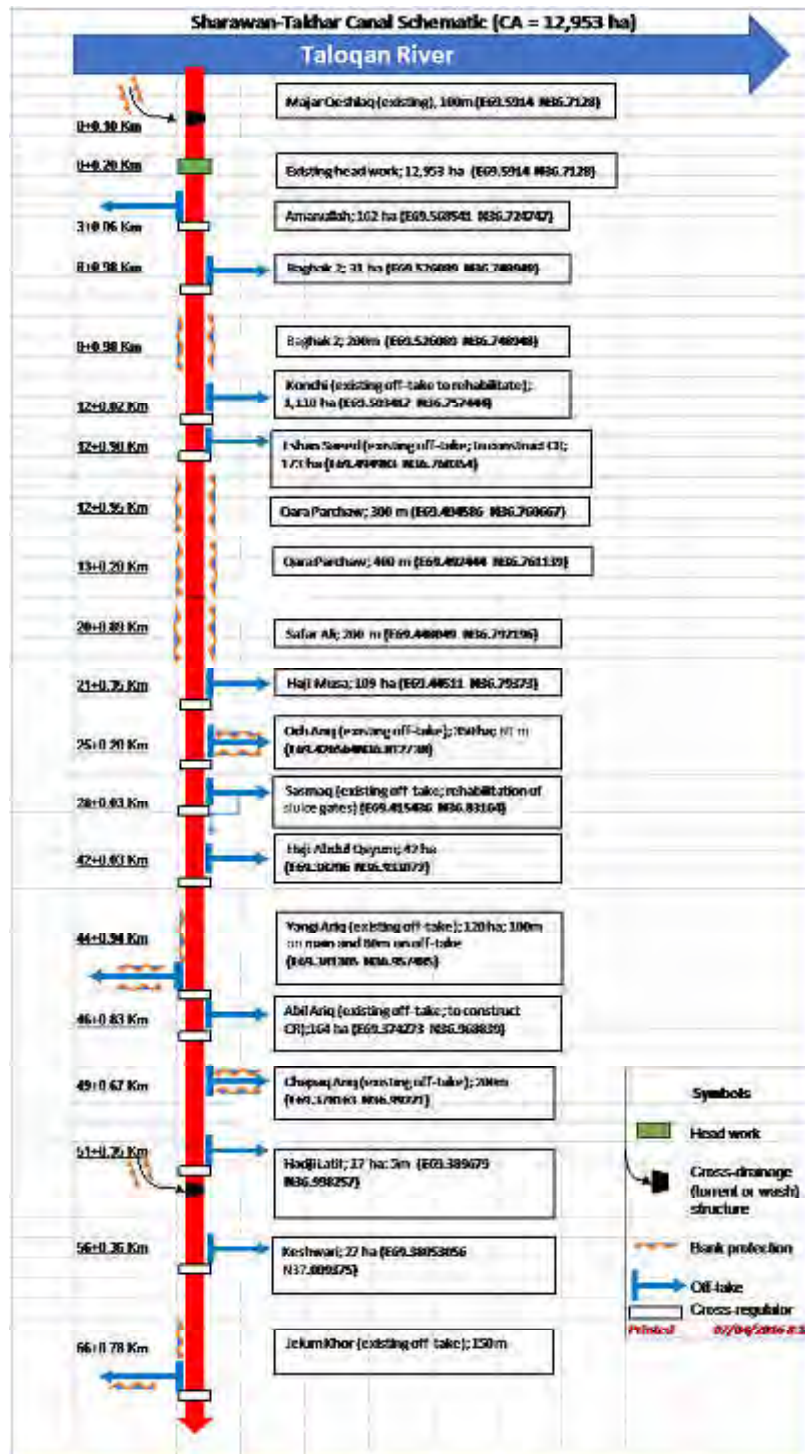
5. Beneficiary-identified locations, problems, and civil works considered in this category are:
  - (i) At Amanullah Canal – An offtake on one side of the main canal leads to an irrigation secondary canal, and an offtake on the other is used for power generation. There is a spill weir in the main canal, but upstream siltation prevents it from working properly. Farmers put brushwood and sand bags on it to raise the water level up to the offtakes. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*
  - (ii) At Baghak 2 Canal – No modern water control structure. Farmers use brushwood and sand bags to raise water levels for diversion. During flood, the farmer-built structure washes away and flood water enters the secondary canal, damaging them. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*
  - (iii) At Konchi Canal – Gated offtake structure is not working properly. Gravel and sediment has accumulated in front of it, and water spills over the structure even when the gate is fully closed. *[Construct new cross-regulator with scour sluice in the main canal, and rehabilitate existing offtake.]*
  - (iv) At Eshan Saeed Canal – The two-gated offtake structure is in good condition. This secondary canal divides into three branches below the offtake. In the main canal downstream of this offtake, is a weir to raise the main canal water level up to the offtake, but it is covered with sediment and sediment is flowing into the offtake. *[Construct a cross regulator with scour sluice in the main canal.]*
  - (v) At Sultan Mahmood wash – A spill weir was constructed in the main canal to divert flood water into Sultan Mahmood wash, but the canal bed at the weir has filled with sediment such that water spills over the weir even in non-flood conditions. *[Provide under-sluice gates in the spill weir to allow for water flow and sediment flushing.]*
  - (vi) At Haji Musa Canal – No modern water control structure. Offtake bed level is above the main canal bed level. Farmers use brushwood and sand bags to raise the water level for diversion. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*
  - (vii) Below Sasmaq Canal – On the main canal below Sasmaq Canal offtake, an escape structure with sluice gate and rectangular channel was constructed with insufficient wing wall protection. After commissioning, the structure ran for four hours and collapsed. *[Rebuild structure.]*

<sup>50</sup> Note: MAIL is responsible for civil works on secondary canals. Thus these civil works considered by the feasibility study consultant are out of scope for the RSP, which will be implemented by MEW, however, MAIL works could be included in an Output 2 MAIL subproject defined during Project implementation.



- (viii) At Haji Abdul Qayum Canal – No modern water control structure at the offtake. Offtake bed level is higher than the main canal bed level. Farmers use brushwood and sand bags to raise the water level to divert water. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*
- (ix) At Yangi Ariq Canal – Offtake is equipped with a water control structure that is in good condition but is being outflanked. Flood destroyed the offtake wing wall joint with the main canal banks and now water flows through the destroyed joint directly into Yangi Ariq Canal. In addition, a nearby pipe intake was constructed by farmers in the Yang Ariq Canal bank to divert water into a tertiary canal. *[Close the pipe intake, rehabilitate and upgrade existing infrastructure including substitute water supply to replace former piped supply, and provide canal lining.]*
- (x) At Abil Ariq Canal – Offtake water control structure was constructed by KRBP. A weir in the main canal does not raise water level enough due to sedimentation. *[Provide cross-regulator with scour sluice in the main canal.]*
- (xi) At Haji Latif Canal: No modern water control structure at the offtake. A small torrent flow falls into the main canal near this offtake, damaging both. The offtake is high relative to the main canal. Farmers use sand bags and brushwood to raise the water level up to the offtake. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*
- (xii) At Keshwary Canal: No modern water control structure at the offtake. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*

Figure A4: RSP Sharawan, Requested Civil Works Schematic



Source: PARBP feasibility study.

**Photo: RSP Sharawan, Bank Protection Near Headwork**



**Photo: RSP Sharawan, Main Sharawan Canal**



**Photo: RSP Sharawan, Amanullah Canal**





**Photo: RSP Sharawan, Baghak 2 Canal**



**Photo: RSP Sharawan, Konchi Canal**



**Photo: RSP Sharawan, Eshan Saeed Cnal**



**Photo: RSP Sharawan, Main Canal, Qara Parchaw**



**Photo: RSP Sharawan, Sultan Mahmood Wash**



**Photo: RSP Sharawan, Safar Ali**





**Photo: RSP Sharawan, Haji Musa**



**Photo: RSP Sharawan, Och Ariq**



**Photo: RSP Sharawan, Sasmaq Canal**



**Photo: RSP Sharawan, Haji Abdul Qayum Canal**



**Photo: RSP Sharawan, Yangi Ariq Canal**



**Photo: RSP Sharawan, Abil Ariq Canal**





**Photo: RSP Sharawan, Abil Ariq Canal**



**Photo: RSP Sharawan, Chapaq Ariq Canal**



**Photo: RSP Sharawan, Haji Latif Canal**





**Photo: RSP Sharawan, Keshwary Canal**



**Photo: RSP Sharawan, Jelum Khor**



## **APPENDIX 5: RSP SEYAAB – BENEFICIARY IDENTIFIED PROBLEM LOCATIONS AND POTENTIAL CIVIL WORKS SOLUTIONS**

### **A. Introduction**

1. This Appendix presents (i) descriptions of each of the problem locations for which beneficiaries, in consultation with their SBA, requested civil works solutions; and (ii) the corresponding civil works solutions considered by the feasibility study consultants (summarized in Table 2 above and shown below in square brackets and italicized).

### **B. Non-Functioning Damaged Intake Structure**

2. The existing two-gate headwork is without gates, and its side walls and divide wall are damaged. [*Rehabilitate walls, provide two new gates.*]

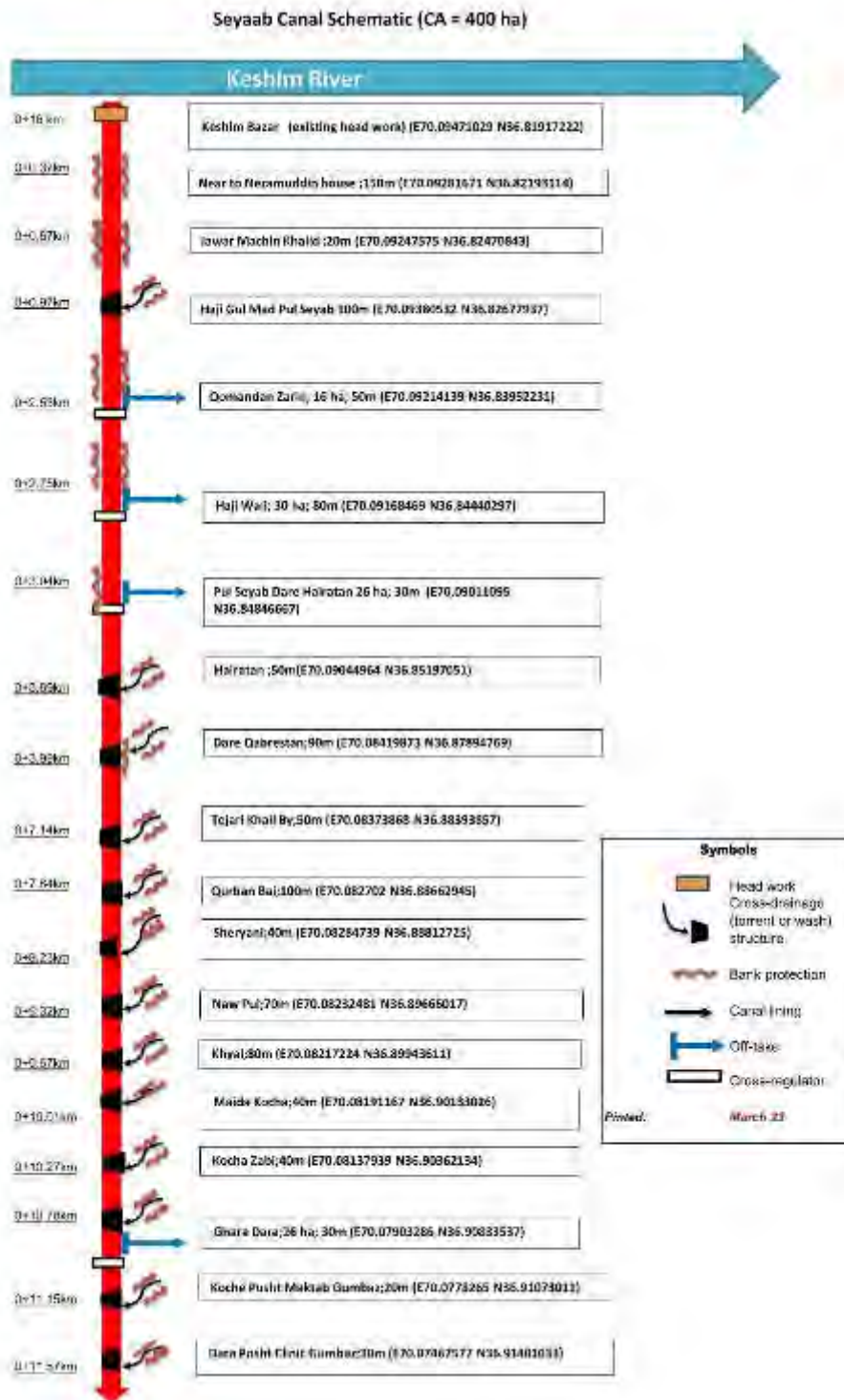
### **C. Main Canal Erosion and Low Banks**

3. Beneficiary-identified locations and problems in this category, and the corresponding civil works solutions considered by the feasibility study consultants, are:
  - (i) Main canal banks are damaged by erosion at Nezamuddin house [*provide 150 m bank protection*], Jawar Machin Khalid [*20 m*], Qomandan Zarin [*50 m*], Haji Wali [*80 m*], and Dare Qabrestan [*90 m*].
  - (ii) Wash flows damage the main canal at Haji Gul Mad Pul e Seyaab, Hairatan, Dare Qabrestan, Tejari Khail Bai, Qurban Bai, Sheryani, Naw Pul, Khyal, Maida Kocho, Kocho Zabi, Kocho Pusht Maktab, and Dara Posht Clinic. [*Provide a cross-drainage structure at each wash.*]

### **D. Inadequate Irrigation Flow Control at Offtakes on Main Canal**

4. Beneficiary-identified locations, problems, and civil works considered in this category are Qomandan Zarin, Haji Wali, Pul Seyaab Dare Haira, and Ghara Dara, each of which is a traditional offtake on the main canal where farmers emplace standbags and other locally-available materials to regulate flow into a secondary canal. [*Provide cross-regulator and offtake water control structure at each offtake. Offtake structures are gated except at Qomandan Zarin which is small and ungated.*]

Figure A5: RSP Seyaab, Requested Civil Works Schematic



Source: PARBP feasibility study.



**Photo: RSP Seyaab, Headwork**



**Photo: RSP Seyaab, Near Nizamuddin House**



**Photo: RSP Seyaab, Jawar Machin Khalid**



**Photo: RSP Seyaab, Haji Gul Mad Pul e Seyaab Wash**



**Photo: RSP Seyaab, Qomandan Zarin**



**Photo: RSP Seyaab, Haji Wali**





**Photo: RSP Seyaab, Pul Seyaab Dare Haira**



**Photo: RSP Seyaab, Hairatan Wash**



**Photo: RSP Seyaab, Dare Qabrestan Wash**



**Photo: RSP Seyaab, Tejari Khail Bai Wash**



**Photo: RSP Seyaab, Qurban Bai Wash**



**Photo: RSP Seyaab, Sheryani Wash**





**Photo: RSP Seyaab, Naw Pul Wash**



**Photo: RSP Seyaab, Khyal Wash**



**Photo: RSP Seyaab, Maida Kocha Wash**





**Photo: RSP Seyaab, Kocha Zabi Wash**



**Photo: RSP Seyaab, Ghara Dara Wash**



**Photo: RSP Seyaab, Ghara Dara Offtake**



**Photo: RSP Seyaab, Koche Pusht Maktab Wash**



**Photo: RSP Seyaab, Dara Posht Clinic Wash**



## APPENDIX 6: RSP LAQI – BENEFICIARY IDENTIFIED PROBLEM LOCATIONS AND POTENTIAL CIVIL WORKS SOLUTIONS

### A. Introduction

1. This Appendix presents (i) descriptions of each of the problem locations for which beneficiaries, in consultation with their SBA, requested civil works solutions; and (ii) the corresponding civil works solutions considered by the feasibility study consultants (summarized in Table 3).

### B. Approach Channel and Intake Problems

2. The approach channel to the intake is vulnerable to erosion. During the flood season, flood water and sediment cannot be excluded from the main canal at the traditional intake. *[Provide 200 m of bank protection to the approach channel in the form of stud groyne (spurs), made of 2 m W X 2 m H gabion boxes in two layers over launching apron mattress at 13 m intervals. Construct a head regulator with spill weir and scour sluice in the main channel 100 m downstream of the approach channel. Above the new head regulator, desilt and line the approach channel.]*

### C. Main Canal Erosion and Low Banks

3. Beneficiary-identified locations and problems in this category, and the corresponding civil works solutions considered by the feasibility study consultants, are:
  - (i) At Cheshma e Gandab (Wash 1), a small wash crosses the main canal near the main canal intake. Its flood flows deposit sediment on the main canal bed and destroy the main canal left bank, cutting off main canal water conveyance. The beds of the main canal and wash are at similar levels. *[Provide a torrent structure to reduce bank damage and sedimentation and safeguard integrity of main canal water supply.]*
  - (ii) At Sang e Sorakh (Wash 2), five washes of varying sizes cross the canal. At the largest, wash flows spill over an existing undersized cross-drainage structure, causing erosion damage to the canal banks and cuts off the canal water supply to downstream areas. This wash is steep in slope and its bed level is significantly higher than the main canal bed level. *[Provide an adequately-sized cross-drainage structure to reduce bank damage and safeguard integrity of main canal water supply.]*
  - (iii) At Shelatma Laqi Canal, the main canal left bank near the river has been breached by flood erosion, and in addition the canal fills with material from landslides off the very high canal right bank. The result is that the main canal conveyance is cut most of the time at this location. *[Cover the canal to reduce sedimentation and safeguard integrity of main canal water supply.]*
  - (iv) At Dojar (Wash 3) – After crossing the road culvert, Dojar wash falls directly into the main canal, damaging it and depositing sediment on its bed. At this location, the main canal flows parallel to Aliabad Main Canal. *[Provide cross-drainage structure to reduce bank damage and sedimentation.]*
  - (v) At Chibguzar 1 and 2 (Wash 4), two washes near each other pass through a pipe culvert under the main Kunduz road and then fall directly into the main canal. They



destroy the main canal banks and deposit sediment on its bed. An earlier attempt was made to direct the torrent water into the nearby Aliabad canal through a concrete step fall structure, but this structure has collapsed. The canal and wash bed levels are similar. *[Provide a torrent structure, such as a spillway with gabion cascade fall and bank protection to reduce bank damage and sedimentation.]*

- (vi) At Haji Rashid, flooding destroys the main canal left bank, allowing water to escape and reducing the water supply to downstream farmers. *[Provide bank protection on both sides of the canal using gabions or stone masonry to reduce bank damage and safeguard integrity of main canal water supply.]*
- (vii) At Wash 5, Haji Qudos, after crossing the main Kunduz road through a pipe culvert, this wash falls into the main canal, destroying the canal banks and depositing sediment on the bed. At this location, the Aliabad main canal runs along the main canal left bank. The bed difference between the main canal and the wash is moderately high. *[Provide bank protection and construct a cross-drainage structure to pass the wash flow over the main canal and Aliabad canal into the nearby Baghlan River. to reduce bank damage and sedimentation.]*
- (viii) At Haikal (Wash 6), a relatively large wash falls into the main canal, destroying the canal banks, depositing sediment on its bed, and damaging the nearby city. The canal and wash bed levels are similar. *[Provide a gabion fall structure in the wash for energy dissipation.]*

#### **D. Inadequate Irrigation Flow Control at Offtakes on Main Canal**

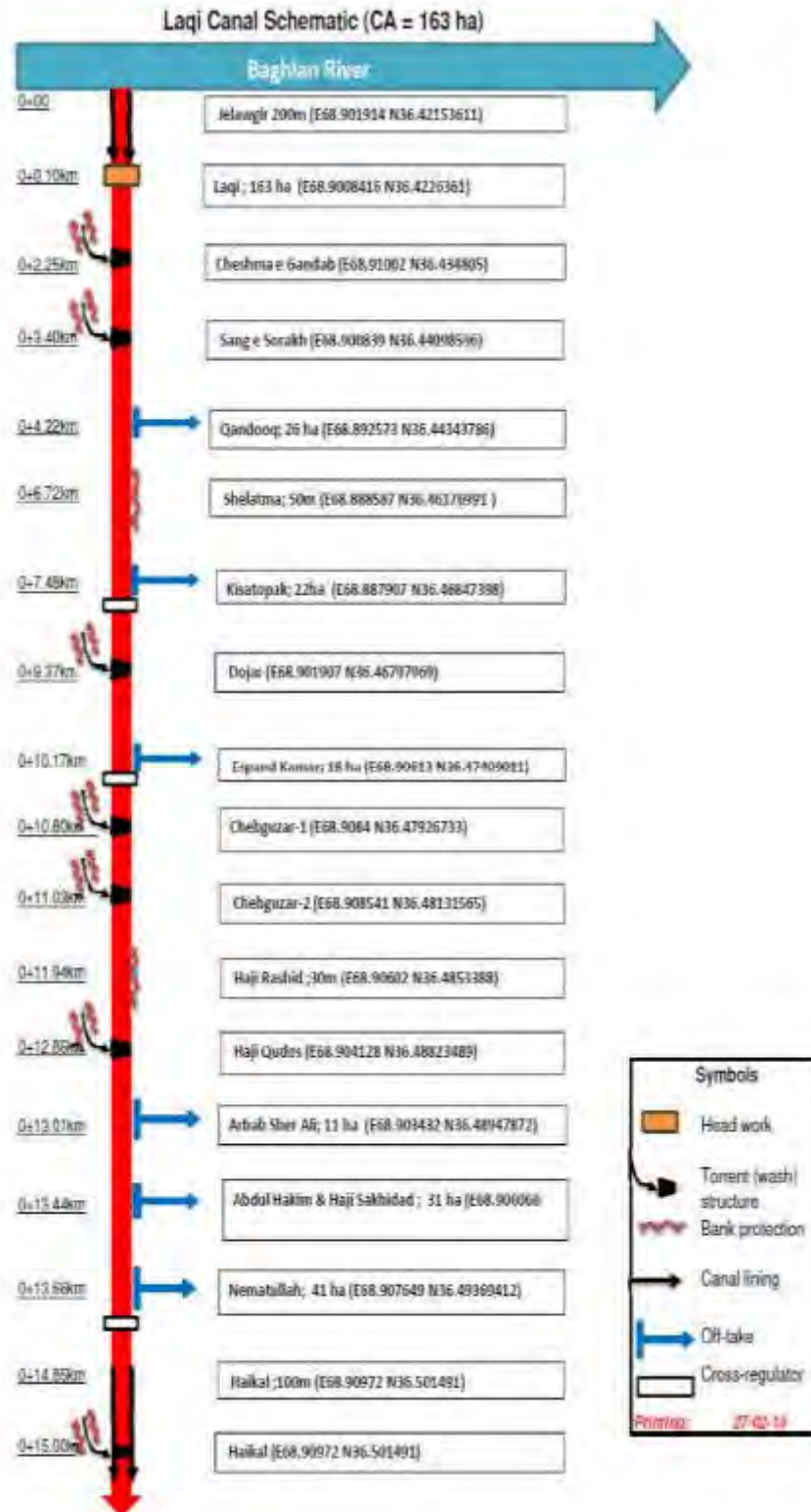
4. Beneficiary-identified locations, problems, and civil works considered in this category are:
  - (i) At Qandooq Canal, there is no water control structure at the offtake. Farmers use sand bags and mud to raise the main canal water level up to the offtake level. During floods, these temporary diversion materials wash away and the main and secondary canals experience erosion damage. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*
  - (ii) At Kisatopak Canal, located near a culvert on the main canal, there are no water control structures at the offtake. The secondary canal below the offtake divides into three. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*
  - (iii) At Espand Kamar Canal, there is no water control structure at the offtake. Near this offtake, the main canal passes through a culvert under the main Kunduz road. The offtake bed level is a bit higher than the main canal bed level. Farmers use sand bags to raise the main canal water level up to the offtake and to control the flow. *[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*
  - (iv) Arbab Sher Ali Canal, Abdul Hakim Canal, Haji Sakhi Dad Canal, and At Nematullah Canal. At each of these four canals, there is no water control structure at the offtake, and farmers use sand bags and mud to raise the main canal water level up to offtake level, which is a bit higher than the main canal bed level.

*[Provide cross-regulator with scour sluice in the main canal and offtake water control structure at the head of the secondary canal.]*

**E. Main Canal Lining at Haikal**

5. Where the main canal runs behind Aliabad city, houses have been constructed along the canal right bank, waste water from the village falls into the canal, and when canal water levels are high, houses are threatened with flooding. *[Provide canal lining.]*

Figure A6: RSP Laqi, Requested Civil Works Schematic



N  
Source: PARBP feasibility study.

**Photo: RSP Laqi, Main Canal (View 1)**



**Photo: RSP Laqi, Main Canal (View 2)**



**Photo: RSP Laqi, 3. Wash Cheshma e Gandab**





**Photo: RSP Laqi, 4. Wash Sang e Sorakh**



**Photo: RSP Laqi, Qandooq Canal**





**Photo: RSP Laqi, Shelatma Laqi Canal**



**Photo: RSP Laqi, Kisatopak Canal**



**Photo: RSP Laqi, Wash Dojar**



**Photo: RSP Laqi, Espand Kamar Canal**



**Photo: RSP Laqi, Wash Chibguzar 1**



**Photo: RSP Laqi, Wash Chibguzar 2**





**Photo: RSP Laqi, Main Canal, Haji Rashid**



**Photo: RSP Laqi, 12.Wash Haji Qudos**



**Photo: RSP Laqi, Arbab Sher Ali Canal**





**Photo: RSP Laqi, Abdul Hakim Canal**



**Photo: RSP Laqi, Haji Sakhi Dad Canal**



**Photo: RSP Laqi, Nematullah Canal**





**Photo: RSP Laqi, Main Canal Behind Aliabad City**



**Photo: RSP Laqi, Wash Haikal**



## APPENDIX 7: LISTED SIGNIFICANT ANCIENT SITES WITHIN THE RUD-I-SHARAWAN COMMAND AREA

**Figure A7.1: RSP Sharawan, Locations of Listed Significant Ancient Sites and Irrigation Offtakes Superimposed on Satellite Image**



Source: US Department of Defense (n.d.) Afghanistan's most significant sites and monuments. Cultural property training resource [website].

### Site 210. Uraz Bacha

Takhar Province. Approximately three kilometers north-northwest of Khwaja Ghar, on the road from Imam Sahib, at the height of the villages of Khush Gildi and Uraz Bacha. Two small mounds are visible from the slopes of the hills that overlook the Rud-i Shahrawan and the Khwaja Ghar plain to the West; they are situated along the edge of an old channel or canal, of which one can follow the traces all along the headland that these hills form towards the North, in the direction of the Oxus (Amu Darya) River. This channel circumvented the headland to irrigate, on the Western slopes, the small plateau of Qarluq and Chichka.

The first part of the site (A) on the right side of the river Rud-i Shahrawan, 200 meters upstream from the bridge where the Khwaja Ghar road traverses the river on the way to Khush Gildi. The second part of the site (B) is one kilometer downstream, 300 meters west of the road, near a cemetery that is visible on a 1:100,000 map to the West of the village of Uraz Bacha. The third tepe (C) is more important, but when last seen was in the process of levelling (eroding), found 400 meters to the east of mound (B) near the last houses in the northern-most part of Khush Gildi.

Date: Mound (B) - Hellenistic, 3rd-1st century BC; Mounds (A) and (C); Hephthalo-Turk, 5th-9th century AD; Traces of Islamic habitation (ceramic evidence).

The site consists of three mounds: (A). A rounded mound (50 meters in diameter, height of six meters) in a planted field gnawed on all sides by irrigation. (B). An oblong mound oriented on a North-South axis (30 x 15 meters, height of 2 meters. (C). A rounded butte (diam. 80m), in the process of disappearance under irrigating cultures (maize and cotton): height of 0.5m, with a little mound of 1m at the center, holding the ruins of a recent house. Also called Karabashan Tepe.

*Site description by J.-C. Gardin, in Warwick Ball, Archaeological Gazetteer of Afghanistan, 1982, n. 1217*

<http://www.cemml.colostate.edu/cultural/09476/afgh05-210.html>

### **Site 209. Urta Buz**

Also known as (includes): Takhta Kupruk, Tepe Abdal

Takhar Province. A natural promontory parallel to the Taluqan River, some kilometers west of Taluqan village; six kilometers long and one kilometer wide; this long mound contains geological evidence of Bronze Age settlements (mounds A, B) in proximity of more recent ruins (C) and Hellenistic era mounds (D, E).

Dates: Bronze Age, 2nd millennium BC; Early Iron Age, late 2nd - early 1st millennium BC; Hellenistic, 3rd - 1st century BC; Some Kushan and Islamic period artifacts.

(A). Range of shards (100 x 20m) at the East extremity of Urta Buz, height to the summit (8m), on the edge of the route from Taluqan to Khwaja Ghar. (B). Shard surface (100 x 50m) to 1.2 km west of A, at the summit of Urta Buz (10m) on the edge of the same route. (C). Shard area at 1 km West of B, neighboring two little mausoleums spaced 100m along the southern border of Urta Buz, around 500m South of the route. (D). Tepe Abdal, in a village by the same name, two rounded hills (diameter 20m, 3 to 5m high) situated along the northern border of Urta Buz above the same route; two modern tombs one on top of the other. (E). 600m East of Takhta Kupruk, on the Taluqan route (200m South of the route) oval hill East-West (300 x 100m), at the bottom of the extreme Western part of Urta Buz, flat summit with two heights, 5m to the Western extremity, 7m in the Eastern half, with a ziyarat on each bump and the modern tombs completely above the surface.

*Site description by J.-C. Gardin, in Warwick Ball, Archaeological Gazetteer of Afghanistan, 1982, n. 1220*

<http://www.cemml.colostate.edu/cultural/09476/afgh05-209.html>

### **Site 124. Khush Bai**

Takhar Province. Seven kilometers northwest of Taluqan, accessible along a road that extends along a plain of the same name along the right bank of the Rud-i Shahrawan, looking due north, group A is 250 meters away; group B is 500 meters away in the same general direction.



Dates: Bronze Age, 2nd millennium BC; (Group A) Achaemenid, 6th-4th century BC; (Group A) Hellenistic, 3rd-1st century BC; (Group B) Kushan, 1st-4th century AD; (Group B) Hephthalo-Turk, 5th-9th century; and some signs of Islamic habitation.

The site consists of two main groups: (A). A group of mounds aligned West-North-West—East-South-East over 500 meters, at the foot of the slopes that border the route of Taluqan at Cha'ila: (a) Further to the West is an oblong mound North-East—South West (60 x 25m), height of 5-6m with the top at the North-East extremity (10m); ziyarat to the South-West. At 20m towards the West, a smaller parallel mound (30 x 20m), flattened (height 4-5m), separated from the preceding by a field; the 2 mounds were probably originally one. (b) Around 50 meters to the East-South-East, we find a rectangular platform North-West—South-East (60 x 40m), medium height 5m with the higher part (8m) to the West, occupied by a modern cemetery (ziyarat). (c) About 50m away from (b), towards the East-South-East, we see a similar mound (200 x 80m) oriented along a northwest—southeast axis, of medium height (2-3m), with the high part (8m) at the West; modern cemetery. On the North face, in the cuts, pockets of ashes with shards, bone, and broken pebbles, burned. This line of mounds spaced a bit apart continues towards the East-South-East, up to the next tepe.

(B) Rectangular North-West---South East mound (80 x 30m), flat top (3m), flanks abruptly sharpened by expansion of the nearby cotton field; here one finds the pot shards in abundance, in particular towards the North-East; burned layers are also visible in cuts on the Eastern face.

*Site description by J.-C. Gardin, in Warwick Ball, Archaeological Gazetteer of Afghanistan, 1982, n. 579*

<http://www.cemml.colostate.edu/cultural/09476/afgh05-124.html>

### **Site 127. Khusti Qishlaq**

Also known as Dorahi or Pasha Khana.

Takhar Province. Approximately 13 km West of Taluqan, alongside the road that connects Taluqan with Khwāja Ghar, which forked at one time towards Khānābād (old road), after having crossed a ford in the river (known as Shoratu), a tributary of the Rūd-i Shāhrawn. Both tēpés are located on the edges of this deeply boxed river, on the left bank (A), and the right bank (B).

Dates: Early Iron Age, late 2nd - early 1st millennium BC. Achaemenid, 6th-4th century BC. Kushan & Hephthalo-Turk period, 1st–9th century AD. Pre-Mongol Islamic, 10th - 13th century. Timurid, 15th-16th century.

The site consists of two tepes on opposite sides of the river: (A). On a sharpened cliff eroded by a bend of the course of the waters of Sharatu, mound in the form of a croissant oriented East-West (100 x 20m), trimmed at the South by the fields of cotton where there are abundant shards; flat top (height of 4m), covered by a ziyarat and a cemetery which prevents for the moment the total disappearance of the site. On the cuts on the South face, thick ashen layers with bone and fragments of burnt jars, at 1m below the surface; on the North face, at the overhang of the cliff, the thickness of the archaeological level does not overtake 2.5m; traces of walls in place, in rough bricks.



(B). Qul Tepe: At the border of the cliff that overhangs the course of the waters of Shoratu around 8 meters (right bank), rectangular platform (circa 150 x 80 m), large axis oriented a bit closer to the East-West; flat top, at ca. 8m above the level of the plane, with a depression in the East part, occupied by a modern cemetery. In the natural cuts on the cliff, visible archaeological levels at a height of around 4m; ashes, coals, walls en parsas and of rough bricks, bone debris, earthenware jars.

*Site description by J.-C. Gardin, in Warwick Ball, Archaeological Gazetteer of Afghanistan, 1982, n. 583*

<http://www.cemml.colostate.edu/cultural/09476/afgh05-127.html>

**APPENDIX 8: LESSONS LEARNED ABOUT IMPACTS, MITIGATION, AND GRM  
FROM DISCLOSED BIENNIAL MONITORING REPORTS OF PREVIOUS SIMILAR  
ADB AFGHANISTAN PROJECTS**

<b>Table A8.1: Monitoring Reports, ADB Water Resources Projects in Afghanistan</b>	
<b>Project</b>	<b>Report dates<sup>51</sup></b>
Northern Flood Damaged Infrastructure Emergency Rehabilitation Project, Afghanistan. Project No. 48326-001	December 2015
Community Based Irrigation Rehabilitation and Development Project. Project No. 36222-013	June 2015
Water Resources Development Investment Program Tranche-1. Project No. 42091-032	October 2013 October 2014 September 2015
Western Basin Water Resources Management Project (WBWRMP). Afghanistan. Project No. 36252-013	February 2014 December 2014

## **A. Introduction**

1. Starting in October 2013, ADB water resources projects in Afghanistan began disclosing, nominally biannually, environmental monitoring reports (EMRs) on the ADB website. Table A8.1 lists the seven reports of four projects available on the website as the time of this writing.

2. The findings of these EMRs are relevant to the RSP IEE-EMPs and the Project EARF, because they provide a window on the implementation of construction-phase environmental safeguards for interventions similar to the RSPs and the Project – similar in concept, objectives, executing agencies, implementation arrangements, baseline environment, types of civil works and construction activities, potential and actual impacts, mitigation, monitoring, public consultation, and complaints and grievances.
3. Sections B through E below highlight the experiences reported in the disclosed EMRs in relation to the following issues:
  - EMP implementation arrangements during construction
  - Observed impacts and mitigation performance
  - Complaints, resolution, and GRM
  - Organization and timeliness of EMRs
4. Section F provides descriptions of each of the Projects, and summaries of salient information from each of the EMRs.

## **B. Observed Impacts and Mitigation Performance**

5. **Northern Flood Damaged Infrastructure and Community-Based Irrigation Rehabilitation.** No negative or adverse (construction-phase) impacts were reported in the monitoring reports of these projects.

<sup>51</sup> Projects are listed in reverse chronological order of the date of their most recent monitoring report.

6. **WRDIP Tranche 1.** A key mitigation concern in the Northern Basin Development (NBD) was to ensure continued irrigation delivery during construction. Civil works contracts required contractors to maintain irrigation flows in canals throughout the construction period. Where canal closures were unavoidable, affected farmers were consulted and closures were with their consent and for minimum duration. No cases of interrupted water supply due to construction were reported during the period. Other than this issue, no significant adverse environmental impacts were reported. Minor temporary impacts at construction sites were noted and addressed.
7. **Western Basin.** Minor construction impacts were noted and rectified; no significant impacts were reported. The final Project environmental assessment noted that future groundwater levels should be monitored, and a network of wells was set up to do this.

#### **C. Construction-Phase EMP Implementation Arrangements**

8. **(i) Northern Flood Damaged Infrastructure and (ii) Community-Based Irrigation Rehabilitation.** These two projects were executed by MRRD, so their EMP implementation arrangements are not relevant to the RSPs which will be executed by MEW.
9. **WRDIP Tranche 1 – MEW executed works.** EMP implementation arrangements on the MEW-executed works consisted of a PMO and several PIOs, a consultant team to provide technical support, all with very limited environment specialist input. The environmental monitoring was mainstreamed into the construction supervision work plan and carried out by PIO construction supervisors, with the support of construction supervisors from the consultant team, who reportedly visited construction sites on a daily basis. Environmental compliance was documented in checklists filled out during monthly joint inspections by PIO staff, the implementation consultant, and contractors. Any issues found were raised at monthly management meetings and recorded in the minutes. Minutes were sent to PMO and incorporated in quarterly progress reporting to ADB and the Executing Agency. This approach worked well.
10. **WRDIP Tranche 1 – MAIL executed works.** On the MAIL side, at the Nangahar Valley Development Agency, the reports describe a series of difficulties, and (eventually successful) efforts to address them, that began early in the NVDA component with the non-delivery of outputs tasked to an international environment specialist. Unfortunately this description does not contain enough information to adduce what, if any, lessons can be learned.
11. **Western Basin.** The Project Management Unit's Environmental Officer (PMU EO) was responsible for environmental monitoring. As a result, the environmental monitoring was carried out separately from the construction supervision, with very few site visits carried out by the PMU EO and implementation consultant environment expert. Interestingly, NEPA was represented on the Project implementation committee, which met quarterly to coordinate Project implementation and address technical issue, including environmental aspects.

#### **D. Complaints, Resolution, and GRM**

12. **Northern Flood Damaged Infrastructure and Community-Based Irrigation Rehabilitation.** No complaints were logged and no non-compliance notices were issued to contractors in either project during the reported periods. The GRM (if there was one) was not described.

13. **WRDIP Tranche 1.** A significant issue arose related to the provision of new permanent division structures (weir with crest divide wall split water between two canals per agreed allocations). Despite PIO staff explaining proposed designs in detail to mirabs and farmers prior to their signing off on construction drawings, it was only when they saw the new division structure being build that they fully understood the proposal. This led to conflicts between farmers and the contractor, who was required to demobilize until communities and the PIO had renegotiated the flow division and the designs were modified. In some cases, farmer/mirab objections did not surface until structures were complete except for divide walls. Demobilization, negotiation, redesign and remobilization satisfied users but delayed construction. PIO eventually advised contractors to notify them immediately upon learning of stakeholder concerns, to minimize construction down time. WRDIP did not have a formal GRM (it was prepared before ADB introduced the GRM requirement). In practice, complaints were handled by the PIOs and PMO.
14. **Western Basin.** GRM was established in PMU at central level and in the WUAs at construction level. WUA heads were provided with logbooks for grieved individuals to record complaints and comments, and were charged to inform PMU of new logbook entries in a timely manner. Monitoring reports state that (i) during Sep 2013 to Feb 2014, several complaints were received about timely disposal of construction waste; all were addressed by contractors within a week; and (ii) during Feb-Dec 2014, no complaints were received.

## **E. Observations of EMR Organization and Timeliness**

### **1. Organization**

15. The seven disclosed environmental monitoring reports differed greatly in the quality and degree of their organization (outlines, section headings). This is unfortunate, as writing reports to logical, consistent outlines provides many benefits. When a logical and complete set of headings is used, covering all topics of interest (needed background information; follow up of the last progress report's action items; reported period activity for each subproject and each impact; etc), authors and readers can find information easily, and can determine readily whether or not all important points have been covered.
16. The EMR outline should be in place at the beginning of the monitoring period, to guide the flow of information from the monitoring activities into the EMR. It should present key facts in a logical, consistent manner. For example, accounts of site visits need to state consistently who participated; what was done; when the visit(s) occurred (frequency and/or dates); the location(s) visited etc.
17. An example EMR outline is provided in Table A8.2. It should be customized to the Project and reporting period.

### **2. Timeliness**

18. Generally speaking, the value of regular status and progress reports diminishes rapidly with time – the sooner after the end of the reporting period they are produced, the greater contribution they can make to resolving problems and improving processes.
19. The seven disclosed monitoring reports were generally not produced on time at biannual intervals as intended. A common cause of delayed reporting is monitoring programme design that separates report writing in time and place from the monitoring activities being reported on.

20. Designing monitoring activities as much as possible to generate reportable outputs in reportable form, on the spot and in real time, allows EMRs to be created from these materials, with minimal editing and re-formatting, starting on (or even before) the first work day after the end of the reporting period.

**F. Project Descriptions and EMR Summaries**

21. This section provides more descriptions of each of the projects and summaries of EMR contents relevant to the topics and issues discussed above.

**Table A8.2: Example Outline, Environmental Monitoring Report**

<p><b>Abbreviations</b>  <b>Executive Summary</b>  <b>Table of Contents</b></p>				
<p><b>I. INTRODUCTION</b></p>				
<p>[Boilerplate that is the same for all EMRs of a particular Project. Describes the reason for the report; its relationship to other reports eg one in a series of biannual monitoring reports required by ADB; purpose of the report eg document results of monitoring activities carried out per IEE-EMP monitoring plan(s); report structure. Length about ½ page]</p>				
<p>[Identify the dates of this reporting period.]</p>				
<p><b>II. PROJECT DESCRIPTION</b></p>				
<p>[Boilerplate that is the same for all EMRs in a series. Project name, acronym, numbers; location, purpose, proponents, financing, summary of physical works, schedule – ½ page]</p>				
<p><b>III. PHYSICAL PROGRESS</b></p>				
<p>[Summary of physical progress (i) to date and (ii) during the reporting period]</p>				
<p><b>IV. STATUS OF FOLLOW UP ACTION ITEMS FROM PREVIOUS EMR</b></p>				
<p>[This section presents a table listing follow-up action items from the previous EMR, actions taken during the reported period, whether or not the issue has been resolved, and if not a description of what remains unresolved and the follow up plan]</p>				
<p><b>List of action items from last section of previous EMR</b></p>	<p><b>Action taken during reported period</b></p>		<p><b>Issue resolved at end of reported period</b></p>	
	<p>Y/N</p>	<p>Description of actions taken</p>	<p>Y/N</p>	<p>Description of unresolved issue &amp; follow up action items</p>
<p>Action item 1</p>				
<p>Action item 2</p>				
<p>Action item 3</p>				
<p>[Add'l lines as needed]</p>				
<p><b>V. MONITORING</b></p>				
<p><b>A. Planned And Undertaken During The Reported Period</b></p>				
<p>[This section presents a text summary of any mitigation deficiencies / adverse impacts found by the monitoring and actions taken to address them, accompanied by a table - structured similarly to the IEE monitoring summary table – that provides details of the monitoring planned and</p>				

**Table A8.2: Example Outline, Environmental Monitoring Report**

actually undertaken during the reported period.]

Subproject		Mitigation measure	Monitored parameters	Location	Results of monitoring / measurements	When measured	By whom
No	Name						

**B. Monitoring Due During The Next Reporting Period**

[This section presents a table that lists the monitoring provisions of EMPs and EARF (if there is one) that apply to the next reporting period]

Subproject		Mitigation measure	Monitored parameters	Location	When to measure	By whom
No	Name					

**VII. PUBLIC CONSULTATION & INFORMATION DISCLOSURE**

**A. Planned And Undertaken During The Reported Period**

[This section presents a table showing the public consultation and disclosure events that were planned and actually occurred during the period, tagged to date, subproject location, participants, issues raised etc. as appropriate.]

**B. Consultation And Disclosure Due During The Next Reporting Period**

[This section presents a table that lists the consultation and disclosure provisions of EMPs and EARF (if there is one) that apply to the next reporting period.]

**VIII. GRIEVANCE REDRESS MECHANISM**

[This section provides information about grievances received during the period, actions taken on new and ongoing grievances, and unresolved issues at the end of the period.]

**IX. FINDINGS AND ACTION ITEMS**

[Summarize main points of monitoring, public consultation and information disclosure, GRM, corrective actions taken, actions items to be undertaken, and recommendations for adjustments to the reported activities (monitoring, public consultation and information disclosure, GRM, corrective actions.)]

**1. Northern Flood Damaged Infrastructure Emergency Rehabilitation Project, Afghanistan (48326-001)**

**a. The Project**

22. The Project rehabilitated irrigation and road infrastructure in northern Afghanistan damaged by severe flooding in 2004. Total Project cost was approximately \$10 million. Rehabilitation encompassed selected (i) small-scale irrigation and rural road infrastructure in 21 worst-affected provinces based on Ministry of Rural Rehabilitation and Development (MRRD) damage and needs assessment (DNA) and (ii) larger-scale irrigation system infrastructure in three provinces based on Ministry of Energy and Water DNA.

**b. Dec 2015 Monitoring Report**

23. This project disclosed one monitoring report dated Dec 2015. The report stated that one subproject was assigned environmental category B and the remaining infrastructure reconstruction/ repair subprojects were expected to be category C. The ADB Rapid Environmental Assessment - Irrigation checklist was used for subproject screening.

24. No negative or adverse construction-phase impacts were reported in completed subprojects. Construction noise and vibration were minimal as physical works were carried out using hand tools (shovels, pickax etc). Water quality impacts were avoided by contractor measures to prevent oil and other spillage, and to store fuel and oil properly. No biodiversity impacts were observed. Between 7 Sep and 6 Dec 2015, four environmental site visits were made by the environment specialist. These were thought to improve contractor environmental performance, but the report recommends making weekly visits in the future. No complaints were logged and no non-compliance notices were issued to contractors during the period of the report.

**2. Community Based Irrigation Rehabilitation and Development Project**

**a. The Project**

25. The Project rehabilitated 138 traditional small-scale irrigation systems at a total cost of \$10.55 million equivalent including physical and price contingencies. MRRD was the executing agency. The Project had three outputs: (i) rehabilitated irrigation infrastructure; (ii) communities effectively manage their irrigation systems; and (iii) capacity development, monitoring and evaluation, improved project management. It was assigned environment category B at preparation.

**b. Jun 2015 Monitoring Report**

26. This Project disclosed one monitoring report dated Jun 2015 at ADB.org. It stated that all subprojects assessed during implementation were found to have minimal environmental impacts upon screening using the ADB Rapid Environmental Assessment - Irrigation checklist, and were assigned environment category C (no IEE or EMP required). No negative or adverse (construction-phase) impacts were reported in completed subprojects. Construction noise and vibration were minimal as physical works were carried out using hand tools (shovels, pickax etc). Water quality improved in rehabilitated ponds and reservoirs. The small-scale rehabilitation works had no biodiversity impacts. No complaints were logged and no (non-)compliance notices were issued to contractors.

### **3. Water Resources Development Investment Program – Tranche 1**

#### **a. The Project**

27. The Water Resources Development Investment Program (WRDIP) comprises a \$303.0 million investment program, financed by the ADB grant through a multi-tranche financing facility (MFF). Tranche 1 became effective on 8 Jan 2010 and comprises two grants: (i) \$86.6 million Asian Development Fund Grant (G0167-AFG) and (ii) a £2.0 million (\$3.3 million) grant co-financed by the Department of International Development (DFID, United Kingdom) to support the establishment of a Helmand River Basin Master Plan. The ADB-financed components of Tranche 1 are Component 1 and 3 under MEW and Component 2 MAIL. WRDIP is classified environment category B.

#### **b. October 2013 Monitoring Report**

28. At the time of writing, PIOs had been established in Takhar for the Yetim Tapa Flood Protection Embankment and Yangi Quala Intake Works, and in Mazar-e-Sharif for the Northern Basin Development (NBD). Takhar PIO staff comprised a Senior Project Coordinator, one Supervision Engineer, a Social Safeguard Officer and an Administrative Officer. Mazar PIO staff comprised a Senior Component Coordinator, two Construction Management Supervisors, a Topographic Surveyor, and a Social Development Specialist. An additional two Construction Supervisors were provided through the Design and Supervision Consultant Service (DSCS) contracted in late 2011 and mobilized in mid-2012. No provision was made for environment or social safeguard positions at the MEW PMO in Kabul, and the DSCS international environmental specialist was present only as required during the design of NBD civil works to specify construction-phase safeguard requirements.
29. The PIO Construction Supervisors, supported by the DSCS Construction Supervisors, were assigned primary responsibility for monitoring environmental issues. The four Supervisors were provided with transport to make daily site inspections including monitoring of compliance to good practices of waste management, vehicle movement, material transport, generation of noise, etc. Works were implemented with community participation, including consultation and consent prior to starting work on any structure and community access to construction sites
30. Cordial working relations were reported among the MEW PMO, PIOs, contractor, and the physical works consultant. PIO staff continually interacted with the farmers and mirabs to explain the operation of the proposed structures, resolve flow division issues, and redesign structures to incorporate specific farmer requirements as needed.
31. The only construction during the monitored period was within the NBD component, on 250 relatively small irrigation structures located in existing secondary and tertiary canals throughout the 400,000 ha Balkh irrigation scheme.
32. A significant issue arose related to the provision of new permanent division structures (weir with crest divide wall split water between two canals per agreed allocations). Despite PIO staff explaining proposed designs in detail to mirabs and farmers prior to their signing off on construction drawings, it was only when they saw the new division structure being built that they fully understood the proposal. This led to conflicts between farmers and the contractor, who was required to demobilize until communities and the PIO had renegotiated the flow division and the designs were modified. In some cases, farmer/mirab objections did not surface until structures were complete except for



divide walls. Demobilization, negotiation, redesign and remobilization satisfied users but delayed construction. PIO eventually advised contractors to notify them immediately upon learning of stakeholder concerns, to minimize construction down time.

33. Verbal compliance warnings were given to contractors not to encroach onto farmland adjacent to structures. No formal written non-compliance notices were issued during the period.
34. The main construction-phase concern was to ensure continued irrigation delivery during construction. Civil works contracts required contractors to maintain irrigation flows in canals throughout the construction period. Where canal closures were unavoidable, affected farmers were consulted and closures were with their consent and for minimum duration. No cases of interrupted water supply due to construction were reported during the period.
35. The EMP did not define a grievance redress mechanism (the EMP was finalized prior to ADB 2009 which introduced the GRM requirement). The de facto GRM was through the Construction Supervisors on their daily site visits, which allowed them to develop relationships with contractors and communities. When they received complaints, they alerted the relevant PIO Coordinator, who either resolved the issue themselves or convened a meeting of concerned parties to do so.
36. Environmental compliance was documented in checklists filled out during monthly joint inspections by PIO staff, implementation consultant, and contractors. Any issues found were raised at monthly management meetings and recorded in the minutes. Minutes were sent to PMO and incorporated in quarterly progress reporting to ADB and the Executing Agency.
37. The ongoing civil works contract sets out the environmental protection requirements. The contractor had (i) established an operational system for managing environmental impacts; (ii) carried out all of the monitoring and mitigation measures set forth in the environmental management plan prepared by the DSCS; and (iii) allocated the budget required to ensure that such measures are carried out.
38. Evaluation of bidders for other Tranche 1 ICB contracts was ongoing at the time of writing. ADB-approved EMPs were attached to bidding documents.

**c. October 2014 Monitoring Report**

39. This monitoring report is quite confusing. Despite repeatedly stating that the only ongoing civil work continues to be the NBD small irrigation structures, it describes environmental safeguards on the MAIL-implemented civil works at the Nangahar Valley Development Authority (NVDA) – not achievements, but rather difficulties in collaboration among environment specialists and others tasked with environmental management responsibilities that prevented progress.

**d. September 2015 Monitoring Report**

40. During the reporting period, civil work commenced for Bangala weir and Yetim Tapa flood protection embankment and Yangi Quala intake.
41. For Bangala Weir, other than 400,000 m<sup>3</sup> of excavation for structure foundations, civil works commencement was delayed due to difficulties in LARP implementation. Progress of the Government LARP compensation process was negatively affected by the inability of

affected people to prove legitimate ownership of affected lands; Ministry of Public Works hired a local NGO to raise awareness of local communities about LARP implementation. Environmental issues were monitored through the contractor per the EMP provided with the bid documents. Environmental assessment plans were discussed with PMO prior to hand over of the environment assessment checklist to the Contractor. During Q1 2015, environmental field inspections were made by the consultant's site engineers and environment specialist. No significant adverse environmental impacts occurred during the reporting period. Several minor temporary impacts related to negligence of contract obligations were noted; MEW PMO and Construction Supervision Consultants instructed the Contractor to rectify these. A lack of the strict adherence to environmental protection by the Bangala contractor was noted, related to poor maintenance of disposal (spoil?) material, inadequate dust control, inadequate domestic waste management, and deficiencies in environmental documentation but construction environmental impacts overall were minimized in accordance with the EMP and contract provisions and had insignificant impacts.

42. For the Yetim Tapa embankment and Yangi Qala headwork, during the reporting period the contractor mobilized; constructed living facilities and a warehouse; established an on-site stone crushing plant and testing laboratory; began installation of a concrete plant; substantially completed construction of a diversion; stocked materials for the stone crushing machine; removed existing gabions; and carried out topographic surveys. Severe flooding on the Amu Darya through August is mentioned as causing construction delays.
43. The documentation of MAIL-NVDA environmental management is more substantial but still difficult to follow. The participation of an international environment specialist who did not produce expected outputs is described. The ICB contractor's environment specialist and the NVDA environment management team worked together to manage construction impacts.
44. The monitoring report highlighted a number of construction-phase impacts, some of which did not occur during the reporting period or pre-date project activities, and proposed mitigation for them. Another list of suggested environmental management measures is provided that neither keys off of observed impacts, nor is it tied to action items.
45. An annex provides a monitoring checklist.

#### **4. Western Basin Water Resources Management Project**

##### **a. The Project**

46. WBP was a water resources sector project based mainly in the Hari Rud river valley in western Afghanistan where the urban and commercial centre of Herat is located. WBP was prepared during Dec 2004 to 2005, and financed by an SDR42.446 million loan and \$14.5 million ADB Special Funds grant. Project physical works comprised rehabilitation and upgrading of irrigation works on six irrigation canals. Implementation arrangements included a full-time environmental officer (EO) in the Project Management Unit (PMU) and a part-time environment specialist on the implementation consultant team. IEEs of the six schemes found no significant negative environmental impacts during construction and operation; minor impacts were deemed manageable.

**b. Feb 2014 Monitoring Report**

47. This report covers EMP implementation monitoring during Sep 2013 to Feb 2014. The implementation arrangements for environmental safeguards assigned responsibility to an Project Implementation Unit Environment Officer (PIU EO), supported by an environment specialist on the consulting team.
48. The PIU EO and environment consultant made field visits to three construction sites. Two of the sites were found to be clean and without construction waste or oil spills. At the third, the environment officer made recommendations to the contractor regarding collection and disposal of solid waste and used machine oil.
49. Contractors and local people at all the sites were reported to be communicating and collaborating on such matters as the design and routing of new canals, coordinating construction and agricultural activities, and in one case, retention of vegetation in an area prone to wind erosion. The grievance mechanism is based on logbooks at WUAs of construction sites, available for individuals to enter comments and complaints, which WUA heads are responsible to convey promptly to PMU. During the reporting period, several complaints were received about timely disposal of construction waste; all were addressed by contractors within a week.
50. The report includes: (i) an example Site Environmental Management Plan (SEMP); (ii) the environmental audit checklist / subproject environmental compliance inspection and monitoring form; and (iii) the GRM complaint logbook template;
51. In Dec 2013, the PMU environment officer and three contractor representatives (two managers and one engineer) participated in a three-day training event organized by *Improving the Implementation of Environmental Safeguards in Central and West Asia* (ADB RETA 7548). The aim of this training was to strengthen the environmental management and monitoring capability of ADB project implementing agencies, construction contractors, and supervision consultants. In addition, contractors received regular on-the-job training from PMU EO and the implementation consultant environment specialist.

**c. Dec 2014 Monitoring Report [Final]**

52. This report presents information for Feb to Dec 2014. It is difficult to discern the identity of the staff and consultants who participated in field visits and the dates of the visits. The report documents EMP implementation by Contractors during Feb – Dec 2014 based on field monitoring trips conducted by PMU staff (findings: no problems at construction sites, no complaints or compliance notices; visit dates, names/titles of visiting staff, and details of visit activities are not divulged), (ii) summaries of IEEs prepared for proposed Pul-e-Hashimi canal and South Main canal subprojects (no significant impacts expected), and (iii) a final environmental assessment of the Project prepared by the Project implementation consultant (findings: Project has improved water supplies; decreased erosion of riverbanks provided with gabions; reduced flood risk; decreased erosion / reclamation of erosion-threatened lands). A groundwater table monitoring network was established at existing and purpose-built wells, to monitor for changes due to increases in irrigation from the Project.

**d. GRM**

53. On the ADB Western Basin Water Resources Management Project (2005-2014), the PMU established a grievance redress mechanism (GRM) at central level in the Project Monitoring Unit and at construction level in the WUAs. The heads of WUAs were provided with logbooks for grieved individuals to record complaints and comments, and were charged to inform PMU of new logbook entries in a timely manner. Monitoring reports state that (i) during Sep 2013 to Feb 2014, several complaints were received about timely disposal of construction waste; all were addressed by contractors within a week; and (ii) during Feb-Dec 2014, no complaints were received.

## **APPENDIX 9: EXAMPLE STANDARD CONSTRUCTION CONTRACT ENVIRONMENTAL SAFEGUARD CLAUSES**

### **A. Environmental Protection and Control of Pollution**

#### **1. General**

1. The Contractor shall observe and comply with all National Laws, Government Regulations, Presidential Decrees, and Ministerial Regulations pertaining to environmental protection, pollution control, waste management and biodiversity protection.
2. In conducting his construction activities the Contractor shall take all necessary precautions to minimise environmental disturbance to the project area and surroundings and to prevent the escape of polluting substances into streams, water courses, and groundwater. The Contractor shall also utilise all necessary practicable methods and devices as are available to prevent and otherwise minimize atmospheric emissions or discharges of air contaminants.
3. Except where otherwise agreed or provided for by the Employer or expressly stipulated in Particular Specifications or Technical Specifications forming part of the Contract Documents, no separate payment will be made for complying with the provisions of this Clause and attendant sub-clauses; and all costs shall be deemed to be included in the prices for the Contractor's mobilisation for construction, and the various rates and lump sum items for the works included in the priced Bill of Quantities.

#### **5. Pollution of Water Courses and Streams**

4. The emission of polluting liquids or other waste into drains, water courses, or groundwater shall not be permitted.
5. No concrete or cement washings from the works or drainage from the Contractor's concrete batching and mixing areas, asphalt (hot mix) plants, or other manufacturing or production facilities shall be allowed to discharge into streams or drains without passing through an adequate system of settling ponds.
6. Storage of fuels, fuelling and maintenance of plant and vehicles, etc. shall take place only on sites and under conditions that do not allow spilt fuels to be discharged to water bodies. Fuel storage and fuelling areas shall be equipped with adequate protective measures to confine and retain accidental spillages. No drainage from fuel store and plant maintenance depots shall be allowed to be discharged without passing through an adequate arrangement of oil traps and separators.
7. Washing of vehicles shall not be permitted in streams but only in specially designated and equipped areas.
8. Operations in quarries and borrow areas shall be carried out in such a way as to minimize any possible pollution from particulate matter entering the streams.
9. Adequate sanitary waste control facilities shall be provided in site offices and workers camps, and sewage waste shall be collected regularly and disposed in accordance with relevant environmental legislation.
10. The Contractor shall accordingly be responsible for the installation, operation and maintenance of a comprehensive drainage system to all areas of the Works. The system

shall be constructed such that no discharges of oil, cement, silt or other liquid or solid waste matter can enter the streams and water courses at the site; and it shall have all necessary solid waste and sediment traps, settling ponds, oil separators, etc., required to ensure that pollution of streams watercourses and natural bodies of water does not occur. The Contractor shall be responsible for maintaining the system to the satisfaction of the Employer's Construction Supervisor and all costs of providing the system shall be deemed to be included in the various rates and lump sum items for the works included in the priced Bill of Quantities.

## **6. Air Pollution**

11. The Contractor shall take all necessary steps to minimize air pollution resultant from his operations.
12. Except where stipulated in these Specifications for the disposal of natural vegetation and organic materials from clearing operations, the burning of waste materials for disposal, particularly oil and petroleum wastes, rubber, plastics and similar materials will not be permitted.
13. During the performance of the work required under the Contract or of any operations appurtenant thereto, whether on the Project Site or elsewhere, the Contractor shall take all steps necessary, and shall furnish all labor, equipment, materials and means, required to reduce dust nuisance from the Works, and to prevent dust originating from his operations from damaging crops, orchards, cultivated fields, and dwellings; or causing a nuisance to persons. The Contractor shall be held liable for any damage resulting from dust originating from his operations including on Government roads, rights-of-way or elsewhere.
14. The emission of dust into the atmosphere shall not be permitted during the manufacture, handling and storage and handling of cement and of concrete aggregates, and the Contractor shall use such methods and equipment as are necessary for the prevention, or the collection and disposal, of dust during such operations. All truck loads of loose materials shall be covered during transportation
15. Concrete batching and mixing areas, asphalt (hot mix) plants, or other manufacturing or production facilities shall be sited at least 500m from the nearest habitation. Emission outlets shall be fitted with pollution control devices in compliance with relevant current Government of Afghanistan emission control legislation.
16. The cost of spraying water on haul roads, access roads, government roads, aggregate stockpiles, etc.; or of any other methods of reducing the formation of dust; and the cost of furnishing and applying materials to maintain the works areas, adjacent areas, and roads, in a dustless condition, shall be deemed to be included in the various rates and lump sum items for the works included in the priced Bill of Quantities.

## **7. Noise Pollution**

17. The Contractor shall take all necessary precautions to minimize the amount of noise and vibrations coming from construction activities.
18. The Contractor shall ensure that all plant and equipment is properly maintained in good operating condition, and that noisy construction activities shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings or shields, acoustic sheds or screens or other means, to avoid disturbance to any nearby noise sensitive receivers. All



plant and equipment shall comply with relevant Government of Afghanistan legislation covering sound emissions.

19. Quarry operations and blasting shall be undertaken so as to minimize blasting and disturbance during the night, and insofar as it is possible, noise, vibration and dust. Operation of trucks and heavy vehicles and machinery shall be restricted to the hours of 06:30 to 19:00.
20. All necessary measures shall be undertaken to protect schools, hospitals and other adjacent noise sensitive receptors, including the use of noise barriers.

#### **8. Damage to Property, Crops and Vegetation**

21. The Contractor shall limit the movement of his employees and equipment within the project area and on adjacent land, including access routes approved by the Employer's Construction Supervisor, so as to minimize damage to natural vegetation, crops and property, and shall endeavor to avoid any damage to land.
22. The Contractor shall strictly ensure employees and equipment do not enter any sensitive environmental areas that are demarcated as "no-entry" zones.
23. The Contractor shall preserve existing trees, plants and other vegetation that are to remain within or adjacent to the Works and shall use every precaution necessary to prevent damage or injury thereto. Trees or shrubs shall only be felled or removed where such impinge directly on the permanent works or necessary temporary works areas; and where such is approved by the Employer's Construction Supervisor.
24. On completion of the Works all areas disturbed by the Contractor's construction activities shall be restored by the Contractor to their original condition, or as may be acceptable to the Employer.
25. The Contractor shall be responsible directly to the Employer for any excessive or unnecessary damage to crops or lands arising from his operations, whether within the project area, on lands adjacent thereto, or adjacent to approved access roads: and deductions will be made from the payment due to the Contractor to cover the cost of such excessive or unnecessary damage, as determined by the Employer.

#### **G. Reporting**

26. The Contractor shall maintain a record of all emissions and spills of liquid, solid and gaseous matter which occur at the site, whether into water courses, streams, on land, or into the air. This record shall be compiled daily and shall include details of date, time and nature of the event, along with details of the remedial and clean-up measures carried out. Copies of these records shall be given to the Employer monthly.
27. The Contractor shall also maintain a record of any complaints made by any Governmental or Community Organization or by the public, regarding his operations. This record shall contain the date and time of receipt of the complaint, the name and address of the complainant and the action taken to remedy the situation. Copies of these records shall be given to the Employer monthly.

#### **H. Environmental Management Plan**

28. The requirements of this clause and attendant sub-clauses on Environmental Protection and Pollution Control notwithstanding; the Contractor shall observe and comply with all

relevant environmental protection and mitigation, monitoring, and reporting requirements in the Environmental Management Plan (EMP) as stipulated in the Particular Specification. In the event of any conflict between the foregoing sub-clauses and the environmental protection and mitigation measures and pollution control requirements of the EMP, the EMP shall take precedence.

29. The Contractor shall prepare and submit to the Employer's Construction Supervisor a Construction Environmental Management and Monitoring Plan (CEMP) demonstrating the manner in which the Contractor will comply with the requirements of the foregoing sub-clauses on Environmental Protection and Pollution Control, the EMP, and any particular environmental mitigation measures as stipulated in the Particular Specifications or Technical Specifications forming part of the Contract Documents.
30. The CEMP shall be submitted within 15 working days of the Contractor receiving the Notice to Proceed with the Works, and shall include a waste management plan detailing procedures for waste management for the site covering all solid, liquid and gaseous waste materials and emissions. The waste management plan shall include procedures for the collection and disposal of all waste materials in such a way as to ensure that no damage is caused to the environment. Training shall be provided to workers about the appropriate implementation of the CEMP and waste management plan measures.
31. Where stipulated in the Particular Specifications or Technical Specifications forming part of the Contract Documents, and provision has been made in the Bill of Quantities; payment for the implementation of the CEMP will be made in accordance with the Unit Rates, Lump Sum or Provisional Sum Items included in the Priced Bill of Quantities.

## **APPENDIX 10: RSP IEE PUBLIC CONSULTATION MEETING RECORDS**

1. This Appendix presents the records for the public consultation meetings held in each of the three RSPs. An annotated list of the meetings is presented in Table A10.1.
2. The meeting agenda and questionnaire used in the men's meetings is presented in Table A10.2. The questionnaire used in the women's meetings is presented in Table A10.3.
3. Notes for each of the meetings are provided in Tables A10.4 to A10.19. Photographs of some of the men's meetings are shown in Figure A10.1. Participant sign-in sheets are shown in Figure A10.2.

**Table A10.1: List of Public Consultation Meetings**

Meeting description						Conducted by	Stakeholders participating	
N	Date	Location					Gender & men's occupations	No
		Position on canal	Qeshlak (village)	District	Province			
<b>RSP Sharawan</b>								
1	20160217	Head	Mughal	Taloqan	Takhar	Z Nadery, PPTA	Men: mirabs, landowners, farmers, student, teacher, CDC officers	11
2	20160214	Mid	District centre	Baharak	Takhar	Z Nadery, PPTA	Men: mirabs, landowners, elders, CDC & IA officers	13
3	20160216	Tail	Jelumkhor	Khwaja Ghor	Takhar	Z Nadery, PPTA	Men: farmers, mirab, chokbashi, CDC member	12
4	20160217 (13941128)	Head	Haji Gulam Sakhi	Taloqan	Takhar	M Satarzada, PPTA	Women <sup>4</sup>	NA
5	20160216 (13941127)	Middle	Chila-poyeen	Baharak	Takhar	M Satarzada, PPTA	Women	13
<b>RSP Seyaab</b>								
6	20160218	Head	District HQ	Keshim	Badakhshan	Z Nadery, PPTA	Men: farmers, landowners, mirabs, student, CDC officer <sup>2</sup>	13
7	20160218	Tail	Gumbaz	Keshim	Badakhshan	Z Nadery, PPTA	Men: all farmers <sup>2</sup>	13
8	20160220 (13941201)	Head	Baloch	Keshim	Badakhshan	M Satarzada, PPTA	Women	13
9	20160220 (13941201)	Middle	Baloch-e-Bala	Keshim	Badakhshan	M Satarzada, PPTA	Women	13
10	20160218	Head	Baloch-e-Bala	Keshim	Badakhshan	Governor, Keshim district	Men: farmers, elders, teacher, landowner, CDC member <sup>2</sup>	13
11	20160218	Mid	Baloch-e-Olia	Keshim	Badakhshan	Governor, Keshim district	Men: elders, CDC members, farmers <sup>2</sup>	13
<b>RSP Laqi</b>								
12	20160211	Head	District centre	Aliabad	Kunduz	Z Nadery, PPTA	Men from Jelawgir qeshlak: landowners, mirab, CDC & IA officers <sup>3</sup>	12
13	20160211	Mid	District centre	Aliabad	Kunduz	Z Nadery, PPTA	Men from Espan Kamer + Qesatopak villages: farmers, mirab <sup>3</sup>	10
14	20160211	Tail Laqi-e-Olia	District centre	Aliabad	Kunduz	Z Nadery, PPTA	Men from Laqi Olia: landowners, CDC & IA officers, guard <sup>3</sup>	11
15	20160210	Head	Laqi Olia	Aliabad	Kunduz	M Satarzada, PPTA	Women	13
16	20160209	Middle	Saifullah	Aliabad	Kunduz	M Satarzada, PPTA	Women	13

CDC=Community Development Council, IA=Irrigation Association, NA=not available, PPTA=Project Preparation Technical Assistance. <sup>1</sup>Photos of women meetings have not been provided, as many of the women participants did not wish to be photographed. <sup>2</sup>Photos not available. <sup>3</sup>At RSP Laqi, one public consultation meeting was held, attended by head area, mid-canal area, and tail stakeholders, with whom separate discussions were conducted.

<sup>4</sup>Attendance sheet lost.

**Table A10.2: Men's Public Consultation Meeting Agenda and Questionnaire****A. Introduction****B. Opening remarks**

Dear Participants, we thank you very much for sparing your valuable time for participating in this important community consultation session, regarding the proposed project <name>. As the first step of our survey and design work, we are conducting field surveys and consultations with you people to obtain your collective views, interests and concerns regarding the design and construction of this project. Please, participate actively in this consultation session so that we clearly understand your views, interests and concerns, and possibly incorporate those in the design and construction of the project.

**C. Discussion of project**

1. Are you aware of the proposed project? *Y/N*
2. Do you approve of the construction of the project? *Y/N*
3. If not, why not? (give reason/s): \_\_\_\_\_
4. Do you think the construction this project is needed by you? *Y/N*
5. If yes, what specific difficulties do you face without this project? (for example, difficulties with: irrigation, agriculture water rotation, water losses, social conditions) \_\_\_\_\_
6. What specific benefits or positive Impacts do you expect from this project? (for example, improvements in irrigation, agriculture, water rotation, water losses, social conditions) \_\_\_\_\_
7. Approximately, how many villages and their total populations could benefit from this project?  
Number of villages/towns: \_\_\_\_ Estimated population: \_\_\_\_
8. Do you think the construction of this canal could cause any negative impacts? *Y/N*
9. If yes, what specific negative impacts or losses to local people do you foresee? \_\_\_\_\_
10. Do you think the construction of this canal could require land acquisition or resettlement? \_  
\_\_\_\_\_
11. If yes, what assets of local people could be affected and how severe would the negative impacts be?

<i>Affected property/asset</i>	<i>Severity of negative impacts (tick)</i>		
Productive land (crop, orchard, pasture)	Severe <input type="checkbox"/>	Moderate <input type="checkbox"/>	Minor <input type="checkbox"/>
Land in built-up area (house, shop, etc.)	Severe <input type="checkbox"/>	Moderate <input type="checkbox"/>	Minor <input type="checkbox"/>
Built-up structures (house, shop, etc.)	Severe <input type="checkbox"/>	Moderate <input type="checkbox"/>	Minor <input type="checkbox"/>
Standing crops and wood/fruit trees	Severe <input type="checkbox"/>	Moderate <input type="checkbox"/>	Minor <input type="checkbox"/>
Loss of income (business, employment)	Severe <input type="checkbox"/>	Moderate <input type="checkbox"/>	Minor <input type="checkbox"/>
Other (specify)	Severe <input type="checkbox"/>	Moderate <input type="checkbox"/>	Minor <input type="checkbox"/>
12. Do you think owners of affected assets may oppose construction of this project?
13. What might they demand in exchange for their cooperation with construction of this project?  
\_\_\_\_\_
14. What suggestions you can make to avoid or minimize land acquisition and resettlement impacts?  
\_\_\_\_\_
15. What specific suggestion you can make regarding design and construction of this project? (for example, changes in location or alignment of civil works) \_\_\_\_\_

**Table A10.3: Women’s Public Consultation Meeting Questionnaire**

<ol style="list-style-type: none"> <li>1. Are you aware of the likely construction of the subproject?</li> <li>2. What are your ideas about the construction of the subproject?</li> <li>3. What are the major water-related problems for women’s activities, such as washing clothes?</li> <li>4. What will be the positive impact for women of the subproject?</li> <li>5. What modifications to the irrigation canals would be helpful (such as water collection, laundry, and animal watering points)?</li> <li>6. Is the water you use for drinking clean and healthy or not? If not what are the problems and the reasons?</li> <li>7. Where does your husband get water from? The irrigation canal or a tubewell? Do they get water from different places for different uses? (drinking, washing, animals, watering the household garden)</li> <li>8. Where do you wash your clothes? In the house? In the irrigation canal?</li> <li>9. Are there times of the year when not enough water is available? If so, how do you manage?</li> <li>10. What suggestions do you have regarding design and construction of this subproject?</li> <li>11. What suggestions do you have to avoid or minimize the water problems you are facing?</li> </ol>
--

**Table A10.4: Meeting 1 – RSP Sharawan head area, men**

<b>Meeting date &amp; time:</b>	20160217 10am
<b>Place:</b>	Mughal Qashlaq, Taloqan
<b>Topics:</b>	See agenda and questionnaire, Table A10.2
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist and Eng Omer Gul Deistical, irrigation Director, Baharak District <i>Stakeholders:</i> per sign-in sheet below, eleven men - mirabs, landowners, farmers, student, teacher, CDC officers
<b>Concerns raised by stakeholders</b>	
<i>Don't change canal alignment</i>	1. Stated that the canal alignment is good and they don't want it to be changed, as they do not want land acquisition or resettlement – this is a concern because the head of Sharawan Canal passes through/near a residential area. Team reassured them that the proposed RSP did not involve changing the canal alignment.
<i>Don't interrupt irrigation water supply during construction</i>	2. Stated that they did not want the water supply to be interrupted during the irrigation season, and that temporary bypass canals should be provided at any construction site that blocks irrigation flows. Team assured them that this would be done
<i>Compensate farmers for crop damage due to temporary construction roads</i>	3. Stated that farmers should be compensated for crop damage due to temporary roads used to bring construction materials to each of the approximately 22 construction sites. Team stated that they did not have the details of the compensation policy for this situation, but would flag it up to the Project.
<i>Hire unskilled laborers locally</i>	4. Stated that unskilled laborers should be hired locally. Team stated that this would be done.
<i>Include community structures in the design (animal water and clothes washing points, foot &amp; vehicle bridges)</i>	5. Stated that community structures should be included in the design – animal water places, clothes washing places, food bridges, and vehicle bridges. They said that community members had previously raised this issue with RSP designers. Team stated that they would flag it up to the Project.



<b>Table A10.4: Meeting 1 – RSP Sharawan head area, men</b>	
<b>Outcomes &amp; conclusions</b>	
All concerns raised by stakeholders documented above will be accommodated by the RSP <b>EXCEPT</b> : community structures other than water access points will not be provided (see action items below).	
The list of hydraulic structures requested by beneficiaries after consultation with the SBA was not provided to the IEE public consultation team prior to this meeting. Therefore the list as a whole and the individual structures were not discussed. The final RSP design excludes many of these listed structures.	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. Keep canal alignment unchanged in RSP design</li> <li>2. Build temporary bypass canals around construction sites as needed to maintain irrigation flows</li> <li>3. Compensate farmers for crop damage due to temporary construction roads per ADB policy</li> <li>4. Hire unskilled laborers locally</li> <li>5. Consult with the community on the locations of RSP water access points</li> <li>6. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) will provide water access points but not other types of requested community structures; and (ii) will rehabilitate and upgrade some beneficiary-requested structures but not others.</li> </ol>	
<b>Reported by:</b>	Zahir Nadery, PPTA consultant

<b>Table A10.5: Meeting 2 – RSP Sharawan mid-canal area, men</b>	
<b>Meeting date &amp; time:</b>	20160214 1pm
<b>Place:</b>	Baharak district center
<b>Topics:</b>	See agenda and questionnaire, Table A10.2
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist, Mr Eng Omer Gul, irrigation Director, Baharak District <i>Stakeholders:</i> per sign-in sheet below
<b>Concerns raised by stakeholders</b>	
<i>Don't change canal alignment</i>	1. Stated that the canal alignment is good and they don't want it to be changed, and they do not want land acquisition or resettlement. Team reassured them that the proposed RSP did not involve changing the canal alignment, nor land acquisition / resettlement.
<i>Don't interrupt irrigation water supply during construction</i>	2. Stated that they did not want the water supply to be interrupted during the irrigation season, and that temporary bypass canals should be provided at any construction site that blocks irrigation flows. Team assured them that irrigation flows would be maintained during construction
<i>Compensate farmers for crop damage due to temporary construction roads</i>	3. Stated that farmers should be compensated for crop damage due to temporary roads used to bring construction materials to each of the approximately 22 construction sites. Team stated that they did not have the details of the compensation policy for this situation, but would flag it up to the Project.
<i>Hire unskilled laborers locally</i>	4. Stated that unskilled laborers should be hired locally. Team stated that this would be done.
<i>Include community structures in the design (especially foot/vehicle bridges over the canal near settlement areas)</i>	5. Stated that community structures should be included in the design – animal water places, clothes washing places, food bridges, and vehicle bridges. They said that community members had previously raised this issue with RSP designers. Team stated that they would flag it up to the Project.

**Table A10.5: Meeting 2 – RSP Sharawan mid-canal area, men**

<b>Outcomes &amp; conclusions</b>	
All concerns raised by stakeholders documented above will be accommodated by the RSP <b>EXCEPT</b> : community structures other than water access points will not be provided (see action items below).	
The list of hydraulic structures requested by beneficiaries after consultation with the SBA was not provided to the IEE public consultation team prior to this meeting. Therefore the list as a whole and the individual structures were not discussed. The final RSP design excludes many of these listed structures.	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. Keep canal alignment unchanged in RSP design</li> <li>2. Schedule construction to maintain irrigation flows, or where needed build temporary bypass canals around construction sites</li> <li>3. Compensate farmers for crop damage due to temporary construction roads per ADB policy</li> <li>4. Hire unskilled laborers locally</li> <li>5. Consult with the community on the locations of RSP water access points</li> <li>6. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) will provide water access points but not other types of requested community structures; and (ii) will rehabilitate and upgrade some beneficiary-requested structures but not others.</li> </ol>	
<b>Reported by:</b>	Zahir Nadery, PPTA consultant

**Table A10.6: Meeting 3 – RSP Sharawan tail, men**

<b>Meeting date &amp; time:</b>	20160216 2pm
<b>Place:</b>	Jelumkhor canal tail, Khoja Ghar district
<b>Topics:</b>	See agenda and questionnaire, Table A10.2
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist <i>Stakeholders:</i> per sign-in sheet below, 12 men - farmers, mirab, chokbashi, CDC member
<b>Concerns raised by stakeholders</b>	
<i>Offtake problems</i>	1. Want reliable control of flows at offtakes
<i>Canal erosion</i>	2. Canals are eroding in places
<i>Water losses</i>	3. Water is lost for a variety of reasons – poor control at offtakes, canal erosion
<i>Land &amp; water levels misaligned in some places</i>	4. In some areas, irrigation management is difficult because water levels are too high relative to land levels; and in other areas, the reverse is true.
<b>Outcomes &amp; conclusions</b>	
All concerns raised by stakeholders documented above will be accommodated by the RSP <b>EXCEPT</b> : canal erosion; and water losses due to canal erosion. Civil works to address these problems are not included in the RSP design.	
The list of hydraulic structures requested by beneficiaries after consultation with the SBA for the RSP was not provided to the IEE public consultation team prior to this meeting. Therefore the list as a whole and the individual structures were not discussed. The final RSP design excludes many of these listed structures.	

<b>Table A10.6: Meeting 3 – RSP Sharawan tail, men</b>	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. Provide modern offtake structures.</li> <li>2. Provide cross-regulators to manage water levels at adjacent upstream offtakes.</li> <li>3. During operation, train WUAs in operation of improved offtakes, to reduce water losses.</li> <li>4. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) will provide water access points but not other types of requested community structures; and (ii) will rehabilitate and upgrade some beneficiary-requested structures but not others.</li> </ol>	
<b>Reported by:</b>	Zahir Nadery, PPTA consultant

<b>Table A10.7: Meeting 4 – RSP Sharawan head area, women</b>	
<b>Meeting date &amp; time:</b>	20160217 (13941128), time not recorded
<b>Place:</b>	Haji Gulam Sakhi village, Taloqan, Takhar
<b>Topics:</b>	See women's meeting questionnaire, A10.3
<b>Attending:</b>	<i>Proponents:</i> Morsal Satarzada, PPTA consultant <i>Stakeholders:</i> Number not recorded, sign-in sheet not available
<b>Discussion</b>	
<p>Participants are aware of the subproject. The major water-related problem for women is that sometimes there is no water in the canal for washing clothes and other activities. Usually they use canal water, and sometimes well water. They expect the canal will benefit women, because now they face water shortages. Canal water is used for drinking; it is not clean. Clothes are washed at home. Water is short in the months of Jawza (May-Jun), Saratan (Jun-Jul), and Asad (Jul-Aug). Specific suggestions were to construct the canal and a feeder canal ("stream"). A deep well is needed.</p>	
<b>Summary</b>	
<p>Women face domestic water supply shortages when there is less water in the canal, typically from May to Aug. They expect the subproject will result in more water in the canal during this period, which will benefit them. They expressed a need for domestic water supply physical works – a feeder canal to bring water from the irrigation canal to the houses area, and a deep well.</p>	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. During subproject design / EMP design: identify and design water access points on canals. Other domestic water supply improvements are out of scope for the Project.</li> <li>2. During construction: take care to maintain domestic supplies and to safeguard drinking water quality at canal locations where water is used for domestic purposes</li> <li>3. During subproject operation: improve water control and efficiency of water use to increase canal water availability for domestic as well as irrigation use</li> </ol>	
<b>Reported by:</b>	Morsal Satarzada, PPTA consultant

<b>Table A10.8: Meeting 5 – RSP Sharawan mid-canal area, women</b>	
<b>Meeting date &amp; time:</b>	20160216 (13941127), time not recorded
<b>Place:</b>	Chila-poyeen village, Baharak, Takhar
<b>Topics:</b>	See women's meeting questionnaire, Table A10.3
<b>Attending:</b>	<i>Proponents:</i> Morsal Satarzada, PPTA consultant <i>Stakeholders:</i> 13 women, per sign-in sheet below

**Table A10.8: Meeting 5 – RSP Sharawan mid-canal area, women**

<b>Discussion</b>	
Participants were not aware of the subproject. The major water-related problem for women is not having access to water. They use canal and well water. They expect the canal will improve access to water and reduced water shortages. Canal and well water is used for drinking, washing clothes, and for animals, though it is not clean and safe – because there is no alternative. Clothes are washed at home. Water is short in the months of Saratan (Jun-Jul), Asad (Jul-Aug), and Mizan (Sep-Oct) [but not Aug-Sep?]. Specific suggestions were to construct the subproject soon, and to include a feeder canal to bring water to the houses for better domestic water access and for irrigation. Wells in the house areas would improve water supplies.	
<b>Summary</b>	
Women face domestic water supply shortages when there is less water in the canal, typically from May to Aug and Sep-Oct [?]. They expect the subproject will result in more water in the canal during this period, which will benefit them. They expressed a need for domestic water supply physical works – a feeder canal to bring water from the irrigation canal to the houses area and wells.	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. During subproject design / EMP design: identify and design water access points on canals. Other domestic water supply improvements are out of scope for the Project.</li> <li>2. During construction: take care to maintain domestic supplies and to safeguard drinking water quality at canal locations where water is used for domestic purposes</li> <li>3. During subproject operation: improve water control and efficiency of water use to increase canal water availability for domestic as well as irrigation use</li> </ol>	
<b>Reported by:</b>	Morsal Satarzada, PPTA consultant

**Table A10.9: Meeting 6 – RSP Seyaab head area, men**

<b>Meeting date &amp; time:</b>	20160218, 2pm
<b>Place:</b>	Sar-e-Pul Keshim
<b>Topics:</b>	See agenda and questionnaire, Table A10.2
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist. Mr. Abdullah irrigation Director, Keshim District <i>Stakeholders:</i> per sign-in sheet below, 13 men – farmers, landowners, mirabs, student, CDC officer
<b>Concerns raised by stakeholders</b>	
<i>Intake problems</i>	1. Stakeholders stated that agricultural land has been lost to erosion in recent years because the intake has migrated laterally. Stakeholders request for this new intake to be located at the site of the previous, pre-erosion intake.
<i>Offtake problems</i>	2. Want reliable control of flows at offtakes
<i>Sliding problems</i>	3. Canal is undercutting higher village land on one side. Stakeholders request physical works to prevent this.
<i>Canal erosion problems</i>	4. Across the canal from this higher village land, the canal runs along the river, which is eroding towards the canal. Stakeholders request physical works to prevent this.
<i>Wash problems</i>	5. Washes erode the canal in places. Stakeholders request physical works to prevent this.
<b>Outcomes &amp; conclusions</b>	
Proposed RSP civil works <b>WILL</b> address one of the concerns raised by stakeholders, offtake problems (and improved intake). Proposed RSP civil works <b>WILL NOT</b> address any of the other concerns raised (sliding, canal erosion, and wash erosion). These are likely to be mitigated however by related catchment protection works.	
The list of hydraulic structures requested by beneficiaries after consultation with the SBA was not provided to the IEE public consultation team prior to this meeting. Therefore the list as a whole and the individual structures were not discussed. The final RSP design excludes many of these listed structures.	

<b>Table A10.9: Meeting 6 – RSP Seyaab head area, men</b>	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. Construct offtakes and cross-regulators in the main canal, as requested by beneficiaries.</li> <li>2. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) will construct all of the requested offtakes, and accompanying cross-regulators, but (ii) will not construct any of the requested bank protection and wash structures.</li> </ol>	
<b>Reported by:</b>	Zahir Nadery, PPTA consultant

<b>Table A10.10: Meeting 7 – RSP Seyaab tail area, men</b>	
<b>Meeting date &amp; time:</b>	20160218
<b>Place:</b>	Gumbaz, Keshim, Badakhshan
<b>Topics:</b>	See agenda and questionnaire, Table A10.2
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist, Mr. Abdullah Irrigation Director, Keshim District <i>Stakeholders:</i> per sign-in sheet below, 13 men – all farmers
<b>Concerns raised by stakeholders</b>	
<i>Don't change canal alignment</i>	1. Stated that the canal alignment is good and they don't want it to be changed. Team reassured them that the proposed RSP would not change the canal alignment.
<b>Outcomes &amp; conclusions</b>	
The stakeholder concern will be accommodated by the Project.	
<b>Action items for proponents</b>	
1. Keep canal alignment unchanged in RSP design	
<b>Reported by:</b>	Zahir Nadery, PPTA consultant

<b>Table A10.11: Meeting 8 – RSP Seyaab head area, women</b>	
<b>Meeting date &amp; time:</b>	20160220 (13941201), time not recorded
<b>Place:</b>	Baloch village, Keshim, Badakhshan
<b>Topics:</b>	See women's meeting questionnaire, Table A10.3
<b>Attending:</b>	<i>Proponents:</i> Morsal Satarzada, PPTA consultant <i>Stakeholders:</i> 13 women, per sign-in sheet below
<b>Discussion</b>	
<p>Participants were aware of the subproject and believe it will benefit the community by increasing water available for power and irrigation, increasing agricultural production, and making water access easier. They mostly use canal water, and also some well water (but there are not enough wells) for drinking and washing clothes; clothes are washed at home. They find the water to be clean. The major water-related problem for women is that water collection points are far from their homes. Water is short in the months of Saratan (Jun-Jul), Asad (Jul-Aug), and Mizan (Sep-Oct) [but not Aug-Sep?]. Specific suggestions were to construct the subproject soon, and to include a feeder canal to bring water to the houses for better domestic water access and for irrigation. Wells in the house areas, or connected to them by a feeder canal, would also improve water access.</p>	
<b>Summary</b>	
<p>Women face domestic water supply shortages when there is less water in the canal, typically from May to Aug and Sep-Oct [?]. They expect the subproject will result in more water in the canal during this period, which will benefit them. They expressed a need for domestic water supply physical works – a feeder canal to bring water from the irrigation canal to the houses area and wells.</p>	

<b>Table A10.11: Meeting 8 – RSP Seyaab head area, women</b>	
<b>Action items for proponents</b>	
1.	During subproject design / EMP design: identify and design water access points on canals. Other domestic water supply improvements are out of scope for the Project.
2.	During construction: take care to maintain domestic supplies and to safeguard drinking water quality at canal locations where water is used for domestic purposes
3.	During subproject operation: improve water control and efficiency of water use to increase canal water availability for domestic as well as irrigation use
<b>Reported by:</b>	Morsal Satarzada, PPTA consultant

<b>Table A10.12: Meeting 9 – RSP Seyaab mid-canal area, women</b>	
<b>Meeting date &amp; time:</b>	20160220 (13941201), time not recorded
<b>Place:</b>	Baloch-e-Bala village, Keshim, Badakhshan
<b>Topics:</b>	See women's meeting questionnaire, Table A10.3
<b>Attending:</b>	<i>Proponents:</i> Morsal Satarzada, PPTA consultant <i>Stakeholders:</i> 13 women, per sign-in sheet below
<b>Discussion</b>	
Participants are aware of the subproject. The major water-related problem for women is not enough water in the village. They use canal water. Clothes are washed at home. Water is short in the months of Saratan (Jun-Jul), Asad (Jul-Aug), and Mizan (Sep-Oct) [but not Aug-Sep?]. Specific suggestions were to construct the subproject soon, and to include a feeder canal to bring water to the houses for better domestic water access and for irrigation. Wells in the house areas would improve water supplies.	
<b>Summary</b>	
Women face domestic water supply shortages when there is less water in the canal, typically from May to Aug and Sep-Oct [?]. They expressed a need for domestic water supply physical works – a feeder canal to bring water from the irrigation canal to the houses area and wells.	
<b>Action items for proponents</b>	
1.	During subproject design / EMP design: identify and design water access points on canals. Other domestic water supply improvements are out of scope for the Project.
2.	During construction: take care to maintain domestic supplies and to safeguard drinking water quality at canal locations where water is used for domestic purposes
3.	During subproject operation: improve water control and efficiency of water use to increase canal water availability for domestic as well as irrigation use
<b>Reported by:</b>	Morsal Satarzada, PPTA consultant

<b>Table A10.13: Meeting 10 – RSP Seyaab head area, conducted by Governor of Keshim district, men</b>	
<b>Meeting date &amp; time:</b>	20160218, time not recorded
<b>Place:</b>	Baloch-e-Bala, Keshim, Badakhshan
<b>Topics:</b>	General discussion among governor and participants
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist, Mr Abdullah, Irrigation Director, Keshim District; Governor of Keshim district <i>Stakeholders:</i> per sign-in sheet below, 13 men - farmers, elders, teacher, landowner, CDC member
<b>Concerns raised by stakeholders</b>	
<i>Don't change canal alignment</i>	1. Stated that the canal alignment is good and they don't want it to be changed. Team reassured them that the proposed RSP would not change the canal alignment.



<b>Table A10.13: Meeting 10 – RSP Seyaab head area, conducted by Governor of Keshim district, men</b>	
<i>Include community structures in the design (a particular bridge)</i>	2. Stated that a community structure, a particular bridge (not named or geolocated in the notes) should be included in the design. Team stated that they would flag it up to the Project.
<b>Outcomes &amp; conclusions</b>	
At the conclusion of the discussion, governor (or his representative) created a hand-written statement of agreement in Dari, that participants each signed and thumb-printed. In rough English translation it says, “During construction of RSP Seyaab, if there is some effect like damage to structures, cutting of trees, damage to house walls, a temporary road through an agriculture area, we all agree / accept that this may happen; and we agree to cooperate with the contractor.”	
Regarding the two concerns raised by these stakeholders: (i) the proposed RSP <b>WILL</b> leave the canal alignment unchanged, but it (ii) <b>WILL NOT</b> include the requested bridge, as this is out of scope for the Project.	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. Keep canal alignment unchanged in RSP design</li> <li>2. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) WILL leave the canal alignment unchanged as requested; but it (ii) WILL NOT include the requested bridge, as this is out of scope for the Project.</li> <li>3. Continue to include the governor in public consultation and disclosure activities.</li> </ol>	
<b>Reported by:</b>	Gul Md. Baloch, Keshim District Governor

<b>Table A10.14: Meeting 11 – RSP Seyaab mid-canal area, conducted by Governor of Keshim district, men</b>	
<b>Meeting date &amp; time:</b>	20160218, time not recorded
<b>Place:</b>	Baloch-e-Olia, Keshim, Badakhshan
<b>Topics:</b>	General discussion among governor and participants
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist, Mr Abdullah Irrigation Director, Keshim District; Governor, Keshim district <i>Stakeholders:</i> per sign-in sheet below, 13 men - Men: elders, CDC members, farmers
<b>Concerns raised by stakeholders</b>	
<i>Don't change canal alignment</i>	1. Stated that the canal alignment is good and they don't want it to be changed. Team reassured them that the proposed RSP would not change the canal alignment.
<i>Include community structures in the design (bridges, other structures not specified in the notes)</i>	2. Stated that community structures, including bridges and other unspecified structures (not named or geolocated in the notes) should be included in the design. Team said that they would flag it up to the Project.
<b>Outcomes &amp; conclusions</b>	
At the conclusion of the discussion, governor (or his representative) created a hand-written statement of agreement in Dari, that participants signed and thumb-printed. In rough English translation it says, “During construction of RSP Seyaab, if there is some effect like damage to structures, cutting of trees, damage to house walls, a temporary road through an agriculture area, we all agree / accept that this may happen; and we agree to cooperate with the contractor.”	
Regarding the two concerns raised by these stakeholders: (i) the proposed RSP <b>WILL</b> leave the canal alignment unchanged as requested; but it (ii) <b>WILL NOT</b> include the requested bridge, as this is out of scope for the Project.	

<b>Table A10.14: Meeting 11 – RSP Seyaab mid-canal area, conducted by Governor of Keshim district, men</b>	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. Keep canal alignment unchanged in RSP design</li> <li>2. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) WILL leave the canal alignment unchanged as requested; but it (ii) WILL NOT include the requested bridge, as this is out of scope for the Project.</li> <li>3. Continue to include the governor in public consultation and disclosure activities.</li> </ol>	
<b>Reported by:</b>	Gul Md. Baloch, Keshim District Governor

<b>Table A10.15: Meeting 12 – RSP Laqi head area, men</b>	
<b>Meeting date &amp; time:</b>	20160211, 10am
<b>Place:</b>	District centre, Aliabad, Kunduz
<b>Topics:</b>	See agenda and questionnaire, Table A10.2
<b>Attending:</b>	<p><i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist, Mr Moqem, Irrigation director, Ali Abad district</p> <p><i>Stakeholders:</i> per sign-in sheet below, Men from Jelawgir qeshlak: landowners, mirab, CDC &amp; IA officers</p>
<b>Concerns raised by stakeholders</b>	
<i>Don't change canal alignment</i>	1. Stated that the canal alignment is good and they don't want it to be changed. Team reassured them that the proposed RSP would not change the canal alignment.
<i>Intake problems</i>	2. When water is high outside the intake, uncontrolled flows into the irrigation canal damage agriculture, erode canal banks, cause water logging – this is major problem
<i>Offtake problems</i>	3. Want reliable control of flows at offtakes
<i>Canal erosion &amp; sliding</i>	4. Canal runs along a contour with hills on one side and the river on the other. Earth slides down into the canal from the hills, and the canal is eroded by the river.
<i>Include community structures in design</i>	5. Stated that community structures, including a bridge (none named or geolocated in the notes) should be included in the design. Team stated that they would flag it up to the Project.
<i>Contractor should work according to design</i>	6. Technical competence, supervision, and accountability of contractors is a concern
<b>Outcomes &amp; conclusions</b>	
Regarding the six concerns raised by these stakeholders, (i) the proposed RSP <b>WILL</b> , as requested, leave the canal alignment unchanged, upgrade two of six requested offtakes, and supervise contractors; but it (ii) <b>WILL NOT</b> include four of six requested offtakes, wash structures, nor the requested bridge which is out of scope for the Project.	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. A modern intake structure will be constructed.</li> <li>2. Modern offtake works will be constructed at two of six offtakes identified by beneficiaries</li> <li>3. PIO construction supervisors will visit regularly and liaise with WUAs, IAs, and community members.</li> <li>4. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) WILL leave the canal alignment unchanged, upgrade two of six requested offtakes, and supervise contractors as requested; but it (ii) WILL NOT include four of the six requested offtakes nor the requested bridge which is out of scope for the Project.</li> <li>5. Continue to include the governor in public consultation and disclosure activities.</li> </ol>	
<b>Reported by:</b>	Zahir Nadery, PPTA consultant

<b>Table A10.16: Meeting 13 – RSP Laqi mid-canal area, men</b>	
<b>Meeting date &amp; time:</b>	20160211
<b>Place:</b>	District centre, Aliabad, Kunduz
<b>Topics:</b>	See agenda and questionnaire, Table A10.2
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist; Mr Moqem, Irrigation Director, Ali Abad district <i>Stakeholders:</i> per sign-in sheet below, 10 men Espan Kamer & Qesatopak villages - farmers, mirab
<b>Concerns raised by stakeholders</b>	
<i>Don't change canal alignment</i>	1. Stated that the canal alignment is good and they don't want it to be changed. Team reassured them that the proposed RSP would not change the canal alignment.
<i>Include community structures, including a bridge, in the design</i>	2. Stated that community structures including a bridge (not named or geolocated in the notes) should be included in the design. Team stated that they would flag it up to the Project.
<i>Intake problems</i>	3. [Information missing from notes]
<i>Offtake problems</i>	4. [Information missing from notes]
<i>Canal erosion &amp; sliding</i>	5. [Information missing from notes]
<i>Land &amp; water levels misaligned in some places</i>	6. In some areas, irrigation management is difficult because water levels are too high relative to land levels; and in other areas, the reverse is true.
<b>Outcomes &amp; conclusions</b>	
Stakeholder concerns [for which information is available] will be accommodated by the RSP, <b>except</b> excluded from the RSP will be four of six requested intakes, wash structures, and the requested bridge which is out of scope for the Project.	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. Keep canal alignment unchanged in RSP design.</li> <li>2. Provide modern intake structure</li> <li>3. Provide modern offtake structures at two of six requested locations.</li> <li>4. Project cross-regulators at the two new intakes to raise water levels as needed to facilitate irrigation water management</li> <li>5. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) WILL leave the canal alignment unchanged, provide a new intake, two offtake structures, and two cross-regulators as requested; but it (ii) WILL NOT include four requested offtakes and cross-regulators, wash structures, or a bridge which is out of scope for the Project.</li> </ol>	
<b>Reported by:</b>	Zahir Nadery, PPTA consultant

<b>Table A10.17: Meeting 14 – RSP Laqi tail area, men</b>	
<b>Meeting date &amp; time:</b>	20160211
<b>Place:</b>	District centre, Aliabad, Kunduz
<b>Topics:</b>	See agenda and questionnaire, Table A10.2
<b>Attending:</b>	<i>Proponents:</i> Zahir Nadery, PPTA national environment consultant, Mr Waditullah Wardak, PPTA national resettlement specialist; Mr Moqem, Irrigation director, Ali Abad district <i>Stakeholders:</i> per sign-in sheet below, 11 men - Men from Laqi Olia qeshlak: landowners, CDC & IA officers, guard

<b>Table A10.17: Meeting 14 – RSP Laqi tail area, men</b>	
<b>Concerns raised by stakeholders</b>	
<i>Don't change canal alignment</i>	1. Stated that the canal alignment is good and they don't want it to be changed. Team reassured them that the proposed RSP would not change the canal alignment.
<i>Provide a spillway at the headworks for flood control</i>	2. Stated that flooding occurs when water levels are high at the intake, a spillway would alleviate this.
<i>Include community structures in design</i>	3. Stated that community structures (not named or geolocated in the notes) should be included in design
<i>Support tree plantation to compensate for tree removal at construction sites</i>	4. Tree removal at construction sites is acceptable, but tree plantation as a compensatory measure is desired.
<i>Headworks problem</i>	5. The main intake (headworks) is a major problem
<i>Erosion and sliding on both sides of canal</i>	6. [information missing from notes]
<i>Offtake problems</i>	7. Want reliable control of flows at offtakes
<b>Outcomes &amp; conclusions</b>	
All stakeholder concerns will be accommodated by the Project.	
<b>Action items for proponents</b>	
<ol style="list-style-type: none"> <li>1. Leave canal alignment unchanged.</li> <li>2. Improve intake to prevent flooding.</li> <li>3. Tree plantation to compensate for tree removal at construction sites will be supported.</li> <li>4. Two modern offtake structures will be provided</li> <li>5. Include in IEE local disclosure materials, information in beneficiary-accessible forms (text, maps, briefings, visits to sites etc) that imparts to them a clear understanding of which beneficiary requests will and will not be addressed by the RSP. Specifically, explain that the RSP (i) WILL leave the canal alignment unchanged, provide a new intake, two offtake structures, and two cross-regulators as requested; but it (ii) WILL NOT include four requested offtakes and cross-regulators, wash structures, or a bridge which is out of scope for the Project.</li> </ol>	
<b>Reported by:</b>	Zahir Nadery, PPTA consultant

<b>Table A10.18: Meeting 15 – RSP Laqi head area, women</b>	
<b>Meeting date &amp; time:</b>	10 <sup>th</sup> Feb, 2016
<b>Place:</b>	Laqi Olia, Aliabad, Kunduz
<b>Topics:</b>	See women's meeting questionnaire, Table A10.3
<b>Attending:</b>	<i>Proponents:</i> Morsal Satarzada, PPTA consultant <i>Stakeholders:</i> 13 women, per sign-in sheet below
<b>Discussion</b>	
Participants are aware of the subproject. The major water-related problems for women are water shortage, no deep well, and having to carry water from very far away. They use canal water, deep well water, and well water. They expect the canal will benefit women, by improving agriculture and reducing water shortages. Canal water is used for irrigation, animals, and washing; it is not clean. Clothes are washed at home. Water is short in the months of Jawza (May-Jun), Saratan (Jun-Jul), and Asad (Jul-Aug). A well is needed for each home.	
<b>Summary</b>	
Women face domestic water supply shortages when there is less water in the canal, typically from May to Aug. They expressed a need for domestic water supply physical works – a feeder canal to bring water from the irrigation canal to the houses area and wells.	

<b>Table A10.18: Meeting 15 – RSP Laqi head area, women</b>	
<b>Action items for proponents</b>	
1.	During subproject design / EMP design: identify and design water access points on canals. Other domestic water supply improvements are out of scope for the Project.
2.	During construction: take care to maintain domestic supplies and to safeguard drinking water quality at canal locations where water is used for domestic purposes
3.	During subproject operation: improve water control and efficiency of water use to increase canal water availability for domestic as well as irrigation use
<b>Reported by:</b>	Morsal Satarzada, PPTA consultant

<b>Table A10.19: Meeting 16 – RSP Laqi mid-canal area, women</b>	
<b>Meeting date &amp; time:</b>	9 <sup>th</sup> Feb 2016
<b>Place:</b>	Laqi Sufla, Aliabad, Kunduz
<b>Topics:</b>	See women's meeting questionnaire, Table A10.3
<b>Attending:</b>	<i>Proponents:</i> Morsal Satarzada, PPTA consultant <i>Stakeholders:</i> 13 women, per sign-in sheet below
<b>Discussion</b>	
Participants are aware of the subproject. The major water-related problem for women is that water is collected by tank [?], very far away and not clean. They use canal and well water. They expect the canal will benefit women through better access to water, clean water, and less water shortages. Canal water is used for irrigation drinking, and animals; it is clean. Local wells are (also) used. Clothes are washed at home. Water is short in the months of Saratan (Jun-Jul), Asad (Jul-Aug), and Mizan (Sep-Oct) [but not Aug-Sep?]. Specific suggestions were to construct the subproject soon, and to include a feeder canal to bring water to the houses for better domestic water access and for irrigation. More wells are needed.	
<b>Summary</b>	
Women face domestic water supply shortages when there is less water in the canal, typically from May to Aug and Sep-Oct [?]. They expect the subproject will result in more water in the canal during this period, which will benefit them. They expressed a need for domestic water supply physical works – a feeder canal to bring water from the irrigation canal to the houses area, and a deep well.	
<b>Action items for proponents</b>	
1.	During subproject design / EMP design: identify and design water access points on canals. Other domestic water supply improvements are out of scope for the Project.
2.	During construction: take care to maintain domestic supplies and to safeguard drinking water quality at canal locations where water is used for domestic purposes
3.	During subproject operation: improve water control and efficiency of water use to increase canal water availability for domestic as well as irrigation use
<b>Reported by:</b>	Morsal Satarzada, PPTA consultant

**Figure A10.1: Public Consultation Meeting Photos**



**Meeting 1, RSP Sharawan head area men**



**Meeting 2, RSP Sharawan mid-canal area men**



**Meeting 3, RSP Sharawan tail area men**



**Meeting 12-13-14, RSP Laqi, men**



**Meeting 13, RSP Laqi mid area, men**



Figure A10.2: Participant Sign In Sheets

**PCM-1, RSP Sharawan head area men**

Minutes of the meeting












Name of Canal: Sharawan Section of Canal: Head of Canal

Date: 17-02-2016

Location: Makajer Dastbeg / Talagan

Agenda: Conducting public consultation with community people regarding Sharawan Canal construction work

List of Participants:

No	Name	Age	Name of Village	Occupation	Signature
1	Chakir Ali	60	Shir Abdul	Mirab Sharwan	
2	Hamedullah	55	Ashk Kadek	Land Owner	
3	Khalid Baser	55	Moghal Dastbeg	Farmer	
4	Muhammad Usaid	45	Moghal Dastbeg	Chairman of CPC	
5	Shamsullah	20	Zargor	Student	
6	Ab. Khair	20	Zargor	Student	
7	Mahmud Nirmati	50	Qora bul 2	Teacher and Lecturer	
8	Sultan M	50	Haji Noor Muhammad	Farmer	
9	Haji Noor M	55	Haji Noor Muhammad	Chairman of CPC	
10	Muhammad Shadi	45	Clauka	Senior Mirab	
11					
12					
13					

Conclusion:

## PCM 2, RSP Sharawan mid-canal area men

## Minutes of the meeting

Name of Canal: Sharawan Section of Canal: AedonDate: 14-02-16Location: Bahera K. TakhorAgenda: Conducting public Consultations Regarding Sharawan Canal Construction work

List of Participators:

No	Name	Age	Name of Village	Occupation	Signature
1	Shaboz Khan	48	Haji Saib Mand	Senior Mand	
2	Rahmat Shah	42	Chaita	Senior Mand	
3	Haji Qasim	50	Haji Osman	Chairman of CDC	
4	Karim bai	60	Choper Doshay	Chairman of JH	
5	Dalima Baie	50	Zary Dancer	Land Owner	
6	Amamun	45	achel dahik	Land owner	
7	Abdulnabi		Sha Rasor	vic Chairman JH	
8	Haji Abdulnabi	65	Dor qashay	Land Owner	
9	Safi legder		Qater nra	Land owner	
10	Haji Dad. M	65	Haji Pahlwan	Land Owner	
11	Haji Chakir Sahi	70	Hyder Dst	Elder of the village	
12	Allahi Jan Bai		Chaita	Elder of village	
13					

Conclusion:



## PCM 3, RSP Sharawan tail area men

## Minutes of the meeting

Name of Canal: ~~Sharawan~~ Section of Canal: ~~Fatt of Canal~~

Date: 16-02-2016

Location: Jilanz Khur

Agenda: Conducting of public Consultation regarding Canal

List of Participants:

N: 37.10605 E 069.41099

No	Name	Age	Name of Village	Occupation	Signature
1	Mohammad Amin	45	Zarbarini bala	Chacki baski	
2	Sahib Muhammad	34	Chughati	Former	
3	Mohammad Hasan	45	Zarbarini Pajam	Former	
4	Sajid M	55	Chughati	Former	
5	Khalidullah	45	Jilanz Khur	Former	
6	Tahir Mirad	60	Chughati	Former	
7	Shawali	42	Zarbarani-e-bala	Former	
8	Abdul Basim	45	Chughati	Chacki baski Jilanz	
9	Shahbaz boy			Senior Mirab	
10	Tahir	65	Jawxoda	Member of CJC	
11	M. Mubir	40	Zarbarani bala	Former	
12	M. Ayub	40	Capuk oriq	Chacki baski Chughati oriq	
13					

Conclusion:



## PCM 5, RSP Sharawan mid-canal area, women

## Minutes of the meeting

Name of Canal: Sharawan Section of Canal: middleDate: 27/11/1394Location: Chaika Posen, Baharake dist

Agenda:

List of Participators:

No	Name	Age	Name of Village	Occupation	Signature
1	نصیر	38	قریب جاگ		
2	غیاث الرحمن	60	جاگ		
3	فاطمہ	30	جاگ		
4	اعظم	67	جاگ		
5	ساجدہ	29	جاگ		
6	بکیہ فاطمہ	70	جاگ		
7	حسن علی	60	جاگ		
8	نصیر	36	جاگ		
9	کوداؤلو	37	جاگ		
10	جمیل	26	جاگ		
11	خان علی	70	جاگ		
12	مراد خان	26	جاگ		
13	فاطمہ	40	جاگ		

Conclusion:

## PCM 6, RSP Seyaab head area

## Minutes of the meeting

Name of Canal: Sayaab Section of Canal: Head of CanalDate: 18-02-16Location: Babarushahr / Kesham 1 Barochi - villageAgenda: Conducting of public Consultation Regarding Sayaab Canal

List of Participants:

No	Name	Age	Name of Village	Occupation	Signature
1	Bashir Ahmad	23	Sar-e-pul	Student of University	
2	Hameed	30	Sar-e-pul	Land Owner	
3	M-Zahir	45	Sar-e-pul	Senior Mirobi	
4	Haji Safer	65	Chawni	Land Owner	
5	Khaled	30	Barochi	Farmer	
6	Iqbal Ullah	35	Barochi	Farmer	
7	Abdul Wahid	23	Barochi ka-e-Ola	Land Owner	
8	Chaudhary Sarwar	60	Barochi Bala	Land Owner	
9	Sardar Akbar	35	Barochi-e-Sipla	Land Owner	
10	Chama Bai	65	Chambar	Farmer	
11	Fauzi Abdul Wahid	45	Barochi-e-Bala	Chairman of (C)	
12					
13					

Conclusion:

## PCM 7, RSP Seyaab tail

## Minutes of the meeting

Name of Canal: Seyaab Section of Canal: Fall of CanalDate: 20-2-16Location: Budalla Shari / Keshwar DistrictAgenda: Conducting public Consultation with Combar village regarding Seyaab Canal Construction work

List of Participants:

No	Name	Age	Name of Village	Occupation	Signature
1	Hata Minulla	45	Combar	Chairman of CWC	
2	Hat Ghoshor M	80	"	Farmer	
3	Khanl	40	"	"	
4	Esu Khanl	40	"	"	
5	Fanaralman		"	"	
6	Qumar	60	"	"	
7	Douood	35	"	"	
8	Azmi	30	"	"	
9	Daadar	60	"	"	
10	Sori Bay	70	"	"	
11	Bud	35	"	"	
12	Azi	45	"	"	
13	Hakma	40	"	"	

Conclusion:



## PCM 8, RSP Seyaab head area, women

## Minutes of the meeting

Name of Canal: Seyaab Section of Canal: Head of CanalDate: 17-02-2016Location: Kashani / Badkhal ShariAgenda: Joint Consultation with Women regarding Enam and projectList of Participants: Construction work and status of women in water lines and projects

No	Name	Age	Name of Village	Occupation	Signature
1	زینبیا	40	بلوچ		
2	آسیہ	23	بلوچ		
3	امال	42	بلوچ		
4	حبیبہ	26	بلوچ		
5	نور ای بی بی	46	بلوچ		
6	پرستو	16	بلوچ		
7	انیزہ	16	بلوچ		
8	موسیٰ	15	بلوچ		
9	میرہ	18	بلوچ		
10	روانہ	17	بلوچ		
11	رابیہ	60	بلوچ		
12	فانہ	20	بلوچ		
13	سنگھو	50	بلوچ		

Conclusion:

## PCM 9, RSP Seyaab, women

## Minutes of the meeting

Name of Canal: Seyaab Section of Canal: Headworks of CanalDate: 19-02-2016Location: Kadach Chan province / Kesham District - Barach-e-Bata villageAgenda: Conducting P.C with women

List of Participants:

No	Name	Age	Name of Village	Occupation	Signature
1	سیدہ	60	بکھارا		
2	عابد	36	بکھارا		
3	لعل	30	بکھارا		
4	زینا	60	بکھارا		
5	رؤس	40	بکھارا		
6	عارفہ	38	بکھارا		
7	سیدہ	44	بکھارا		
8	سیدہ	30	بکھارا		
9	کمالہ	28	بکھارا		
10	بچی خاں	60	بکھارا		
11	سیدہ	22	بکھارا		
12	سیدہ	20	بکھارا		
13	سیدہ	23	بکھارا		

Conclusion:

PCM 10, RSP Seyaab head area, conducted by Keshim district governor

*[Handwritten signature]*

Minutes of the meeting

Name of Canal: *Seyaab* Section of Canal: *Head of Canal*

Date: *18-02-16*

Location: *Bubkh-e-Bahu, Pagan, Malan*

Agenda: *Public Consultation with Affected peoples while work will be affecting them project construction work at Town*

List of Participants: *Setting and distribution*

No	Name	Age	Name of Village	Occupation	Signature
14	<i>[Handwritten Name]</i>	<i>50</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
15	<i>[Handwritten Name]</i>	<i>40</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
16	<i>[Handwritten Name]</i>	<i>35</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
17	<i>[Handwritten Name]</i>	<i>30</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
18	<i>[Handwritten Name]</i>	<i>28</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
19	<i>[Handwritten Name]</i>	<i>20</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
20	<i>[Handwritten Name]</i>	<i>5</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
21	<i>[Handwritten Name]</i>	<i>20</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
22	<i>[Handwritten Name]</i>	<i>10</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
23	<i>[Handwritten Name]</i>	<i>70</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
24	<i>[Handwritten Name]</i>	<i>50</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
25	<i>[Handwritten Name]</i>	<i>70</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>
26	<i>[Handwritten Name]</i>	<i>30</i>	<i>[Handwritten Village]</i>	<i>[Handwritten Occupation]</i>	<i>[Signature]</i>

Conclusion:

*[Handwritten conclusion text in Urdu, discussing the meeting's purpose and the impact of the project on the community.]*

Note: Participant numbering was continued at 14 from the sign-in sheet of the previous meeting held by the district governor, PCM 11 at Seyaab mid-canal area.

PCM 11, RSP Seyaab mid-canal area, conducted by Keshim district governor

سریاب

Minutes of the meeting

Name of Canal: Seyab Section of Canal: Atadum

Date: 18-02-16

Location: Balochi Olla

Agenda: Public Consultation with Community and Farmers regarding project + Construction work, Taxes cutting and other related issues

List of Participants:

No	Name	Age	Name of Village	Occupation	Signature
1	الحاج نور محمد مبارک	۲۰	بجوع کرک	ملاک	
2	الحاج محمد علی	۵۰	"	مستطین	
3	الحاج محمد یونس	۶۵	"	ملاک	
4	الحاج محمد یونس	۵۵	بجوع کرک	ملاک	
5	الحاج محمد یونس	۶۰	بجوع کرک	ملاک	
6	الحاج محمد یونس	۷۰	"	ملاک	
7	الحاج محمد یونس	۶۵	بجوع کرک	"	
8	الحاج محمد یونس	۶۵	بجوع کرک	"	
9	الحاج محمد یونس	۶۰	بجوع کرک	"	
10	الحاج محمد یونس	۶۰	بجوع کرک	"	
11	الحاج محمد یونس	۶۰	بجوع کرک	"	
12	الحاج محمد یونس	۶۰	بجوع کرک	"	
13	الحاج محمد یونس	۶۰	بجوع کرک	"	

Conclusion:

نتیجہ بندی  
 در جریان تطبیق پروژہ کانال و سربازہ در ہر نوع مشاورہ با مردم وارد شدہ و مابین قبولی مابین  
 زمین خرید و اجارہ آؤ کنندہ در مشورہ و اخلاقی مواد استقامتی در ساحتہ ساختہاں مبارک  
 ملکہ و مورد و سلباً ترا سپردگی ان در اصل زمینہ کہ فی شخصی و تحریب جویوں کہ ان جہتی  
 در نتیجہ ان ہر نوع تعامل در رابطہ تطبیق کردہ در کامیاب ہر بحث بہر حکما جسٹس در کثرت اداتہ افراد ان  
 [Signatures]



**PCM 12, RSP Laqi head area**

Minutes of the meeting

Name of Canal : Laqi Canal Section of Canal : Head of Canal

Date:

Location: Culew geer

Agenda : Conducting public Consultation with Community regarding project

List of Participants:

No	Name	Age	Area( )	Occupation	Signature
1	Jalal	40	Culew geer	Guard	
2	Ab. Ahmad	37	Qisatop of IA	IA	
3	Ali Mohamed	35	Daira Topak	Member of CDC	
4	Haji Agha M	50	''	Land Owner	
5	Shak Sonoo	37	''	Chairman of CDC	
6	Haji Mohamed Sahir	52	Laqi Chai	Mirab	
7	AKbar	55	Daira Topak	Land Owner	
8	Ali Mohamed	35	''	Land Owner	
9	Cul Meer	60	''	Former	
10	Ghulam Husein	60	''	Farmer	
11	Salahuddin			D. Chairman of IA	
12					
13					

Conclusion:

جملہ اراکین نے مل جل کر کام کیا اور تمام امور کو بہتر بنانے کی بات کی۔  
 "خیر برائی کو خیر قرار دیا اور تمام امور کو بہتر بنانے کی بات کی۔"  
 دوسری باتوں پر بھی اراکین نے اپنی رائے دی اور تمام امور کو بہتر بنانے کی بات کی۔

## PCM 13, RSP Laqi mid-canal area

## Minutes of the meeting

Name of Canal: Laqi Canal Section of Canal: Middle of Canal

Date:

Location: Laqay SoplaAgenda: Conducting public Consultation with area people regarding project

List of Participants:

No	Name	Age	Area( )	Occupation	Signature
1	Haji Sakhi Dad	60	Laqi Sofla	farmer	
2	MR Bab Shir Ali	64	Laqi olia	farmer	
3	Yar Mohammad	60	Laqi Sofla	farmer	
4	Nemat Allah	42	Laqi Sofla	farmer	
5	M. Zahir	52	Mevab Laqi Canal	Mevab	
6	M. Karim	33	Laqi Sofla	farmer	
7	Haji Abdul Khair	63	Laqi Sofla	farmer	
8	Haji Safar Ali	68	Laqi olia	farmer	
9	Nazar Mohammad	36	Laqi Sofla	farmer	
10	M. Azi Z	70	Dava-e-Sofi	farmer	
11					
12					
13					

Conclusion:

دشمن سنی در سنی تقویت و دینار و جریبی از سنی سنی  
 نوردن سنی در دینار و جریبی از سنی سنی  
 در سنی سنی در سنی سنی در سنی سنی  
 در سنی سنی در سنی سنی در سنی سنی  
 در سنی سنی در سنی سنی در سنی سنی





## PCM 15, RSP Laqi head, women

## Minutes of the meeting

Name of Canal: \_\_\_\_\_ Section of Canal: \_\_\_\_\_

Date: 10 - Feb - 2016

Location: Ali Akbar District Kaveluz Province

Agenda: Conducting PC with women

List of Participators:

No	Name	Age	Area( )	Occupation	Signature
1	زبان	42	لقه اوليا		
2	فاهه	46	لقه اوليا		
3	خديجه	56	لقه اوليا		
4	عبدالرحمن	46	لقه اوليا		
5	زلال	60	لقه اوليا		
6	زبان	26	لقه اوليا		
7	نسيه	30	لقه اوليا		
8	صديق	30	لقه اوليا		
9	ميرالينا	50	لقه اوليا		
10	كشريف	60	لقه اوليا		
11	الف	33	لقه اوليا		
12	پسوي	18	لقه اوليا		
13	محمد	30	لقه اوليا		

Conclusion:

## PCM 16, RSP Laqi middle, women

## Minutes of the meeting:

Name of Canal: Laqi Section of Canal: LaqiDate: 9 - Feb - 2011Location: Laqi S. S. S. P.Agenda: Conducting PC

List of Participants:

No	Name	Age	Area( )	Occupation	Signature
1	<u>Shirala</u>	<u>41</u>	<u>Laqi S. S. S. P.</u>		
2	<u>Shirala</u>	<u>60</u>	<u>Laqi S. S. S. P.</u>		
3	<u>Shirala</u>	<u>42</u>	<u>Laqi S. S. S. P.</u>		
4	<u>Ziba</u>	<u>69</u>	<u>Laqi S. S. S. P.</u>		
5	<u>Shirala</u>	<u>56</u>	<u>Laqi S. S. S. P.</u>		
6	<u>Shirala</u>	<u>40</u>	<u>Laqi S. S. S. P.</u>		
7	<u>Shirala</u>	<u>40</u>	<u>Laqi S. S. S. P.</u>		
8	<u>Shirala</u>	<u>60</u>	<u>Laqi S. S. S. P.</u>		
9	<u>Shirala</u>	<u>20</u>	<u>Laqi S. S. S. P.</u>		
10	<u>Shirala</u>	<u>34</u>	<u>Laqi S. S. S. P.</u>		
11	<u>Shirala</u>	<u>38</u>	<u>Laqi S. S. S. P.</u>		
12	<u>Shirala</u>	<u>26</u>	<u>Laqi S. S. S. P.</u>		
13	<u>Shirala</u>	<u>30</u>	<u>Laqi S. S. S. P.</u>		

Conclusion: