Environmental Assessment and Review Framework

March 2018

PAK: Balochistan Water Resources Development Sector Project

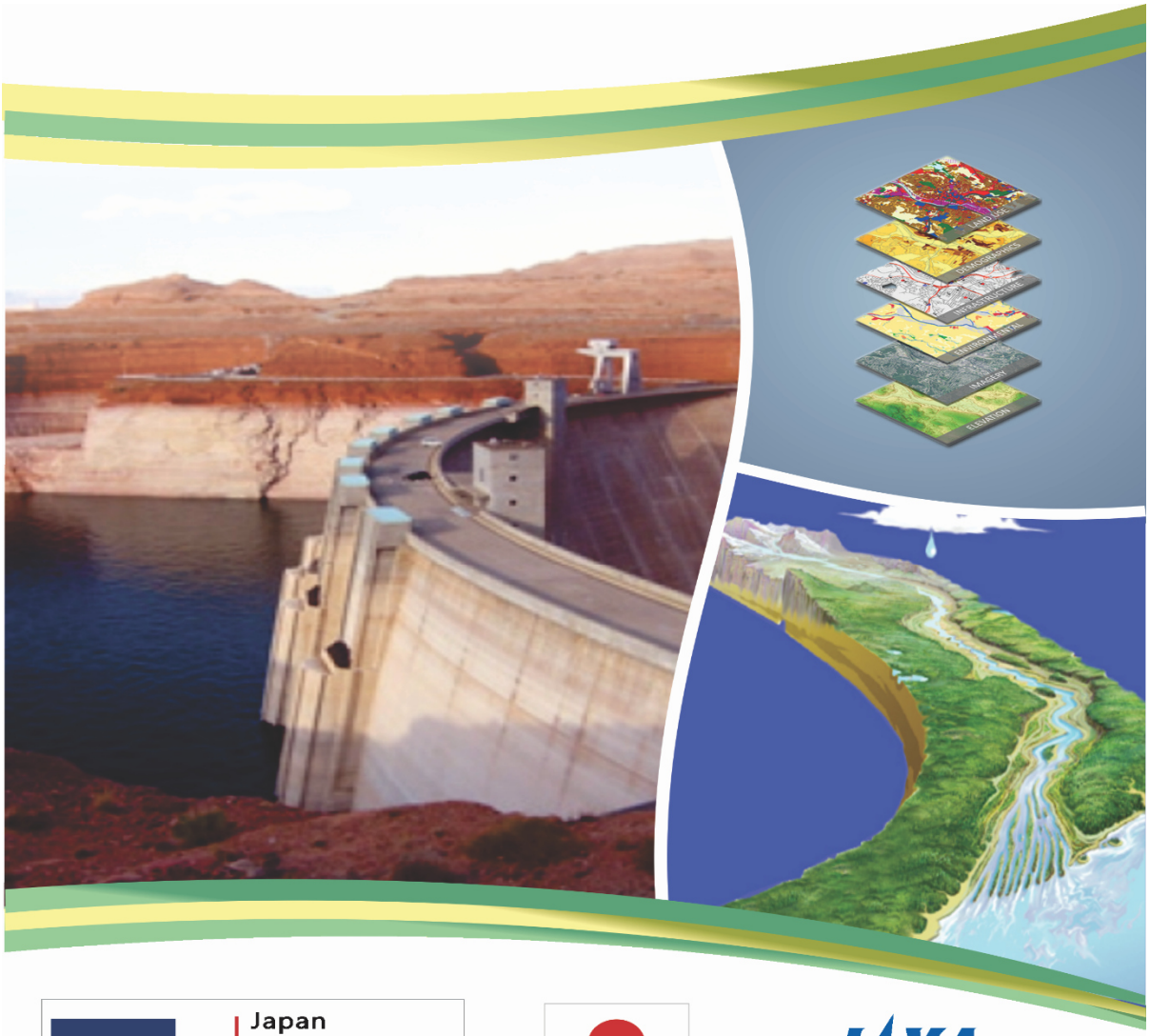
Project No. 48098-002

Prepared by Irrigation and Power Department, Government of Balochistan for the Asian Development Bank (ADB).

Government of Balochistan

TA 8800-PAK: Project Preparatory Technical Assistance for Balochistan Water Resources Development

ENVIRONMENTAL ASSESSMENT AND REVIEW FRAMEWORK



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Techno-Consult International (Pvt.) Ltd.
WATER DIVISION

QUETTA OFFICE:
Old Bolan Dam Project Office
Irrigation Colony, Sariab Road
Quetta.
Tel: (92-81) 2449439
Fax:

WATER DIVISION:
16-E, Block-6, PECHS,Karachi, 75400
Tel: (92-21) 34302876-77-78-79
Fax: (92-21) 34302880
Email: info@waterdivision.com.pk
Website: www.techno-consult.com

TECHNO HOUSE:
37-K, Block-6, PECHS, Karachi, 75400
Tel: (92-21) 3453-0630-32
Fax: (92-21) 34546606
Email: email@techno-consult.com
Website: www.techno-consult.com

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LIST OF ACRONYMS

ACD	Agriculture and Cooperatives Department
ADB	Asian Development Bank
BID	Balochistan Irrigation Department
BWRDP	Balochistan Water Resources Development Project
EA	Executing Agency
EARF	Environmental Review and Assessment Framework
EIA	Environmental Impact Assessment
FO	Farmers Organization
GoB	Government of Balochistan
GoP	Government of Pakistan
GRC	Grievance Redressal Committee
GRM	Grievance Redressal Mechanism
IA	Implementing Agency
IEE	Initial Environmental Examination
IP	Indigenous People
IR	Involuntary Resettlement
IWRM	Integrated Water Resource Management
LAA	Land Acquisition Act
LARP	Land Acquisition and Resettlement Plan
NGOs	Non-Government Organizations
PDSC	Project Design and Supervision Consultants
PIC	Project Implementation Consultant
PMO	Project Management Office
PPTA	Project Preparatory Technical Assistance
SESU	Social and Environmental Safeguard Unit
SPS	Safeguard Policy Statement
TA	Technical Assistance
TOR	Terms of Reference
USD	US Dollar

1 Introduction

1.1 Project Background

1. The Balochistan Water Resources Development Project (BWRDP) aims to support the Government in water sector planning, management and investment on water sector infrastructure in selected river basins. It will assist the government for investment to improve water storage and supply infrastructure at the Zhob and Mula River basins and improve agricultural farm productivity. The water resource and infrastructure development works will be implemented in territorial jurisdictions of Killa Saifullah, Zhob and Khuzdar districts along Zhob and Mula River Basins, respectively.

2. The proposed project will construct and improve irrigation land of about 17,225 hectares (ha) and benefit about 42,866 farmers in the Balochistan province. The project has three outputs: (i) irrigation infrastructure and watershed protection constructed and/or rehabilitated, including construction of Siri Toi Dam with storage of 30 million cubic meters, 276 kilometers of irrigation canals and structures, and land and soil conservation activities, water harvesting and small storage ponds; (ii) irrigation command area established and/or improved, including about 17,255 hectare (ha) irrigated land, on-farm water management and agronomic techniques (land leveling and irrigation scheduling, and pilot of about 130 ha high-value agriculture; and (iii) institutional capacity strengthened, including implementation support consulting services, training, and water information system.

1.2 Sector Loan Subprojects

3. The BWRDP aims to develop water sector infrastructure for improved water supplies for irrigated agriculture and domestic uses; for better watershed management and capacity building of the EA and other stakeholders including the farming communities. From a long list of 351 subprojects for the Zhob (168 sub-projects) and Mula river basins (183 sub-projects), 67 possible subprojects were shortlisted. This was further reduced to 20-30 potential subprojects using the following criteria: (i) water and land availability at the sub-project level; and (ii) ratio of catchment area to the command area as an indirect indicator for the assessment of hydrologic endowment of the sub-project. Based on these criteria, 11 candidate subprojects (5 in Zhob and 6 in Mula) have been selected for inclusion in ADB's Sector loan including 3 core subprojects.

4. Of the 3 core sub projects, one is a dam sub project in Zhob and two clusters of small sub projects in Mula river basin. Based on the pre-feasibility survey, potential infrastructure development schemes finalized for financing under sector loan are shown in **Table 1** below. Location map of the shortlisted potential schemes in both river basins are presented in **Figure 1** and **Figure 2**.

Table 1- Potential Schemes to be Included in the Sector Loan

No.	Scheme Name	River Basin
1	Ahmed Zai Perennial Irrigation Scheme (PIS)	Zhob River Basin
2	Sabakzai Dam Command Area Rehabilitation Works	Zhob River Basin
3	**Siri Toi Tangi War Dam**	**Zhob River Basin**

No.	Scheme Name	River Basin
4	Killi Sardar Akhter Perennial Irrigation Scheme (PIS)	Zhob River Basin
5	Farmers Managed PIS/FIS Scheme Improvement	Zhob River Basin
6	Churri Infiltration Gallery	Mula River Basin
7	Pashta Khana and Garambowad PIS	Mula River Basin
8	**Karkh Valley Development Scheme**	**Mula River Basin**
9	**Kharzan Hatachi Infiltration Gallery**	**Mula River Basin**
10	Manyalo, Raiko and Rind Ali PIS	Mula River Basin
11	Farmers Managed PIS/FIS Scheme Improvement	Mula River Basin

Note: Highlighted are the core subprojects.

1.3 Need, Purpose and Scope of EARF

5. The main purpose of the EARF is to provide a mechanism to adequately screen, assess, review, and monitor the environmental impacts of candidate sub projects under the sector loan for this Project. The EARF is also prepared to ensure that the environmental impacts for any future sub projects are assessed in a systematic way and the assessment process fulfils the relevant environmental legislations / policies / guidelines of Pakistan (i.e. PEPA 1997) as well as those of ADB (i.e. SPS 2009).

6. The EARF includes assessment of legal framework and institutional capacity, anticipated environmental impacts, environmental assessment of sub projects and components, consultation, information disclosure, and grievance redress, institutional responsibilities, and monitoring and reporting requirements.

1.4 Executing/Implementing Agency (EA/IA)

7. Balochistan Irrigation Department (BID) is the executing agency (EA) for this Project as well as the implementing agency (IA) for the construction of irrigation infrastructure and institutional capacity strengthening components and is overall responsible for safeguards management at project and sub-project levels. Agriculture and Cooperatives Department (ACD) is the IA for the command area development and watershed protection component.

1.5 Existing Capacity of the EA/IA

8. There is no staff within the EA/IA with capacity to prepare and implement the EARF and other environmental aspects in line with the ADB requirements. During implementation of the BWRDP, to enhance the capacity of the EA/IA, a Social and Environmental Safeguards Unit (SESU) is proposed to be established within the Project Management Office (PMO), supported by the Project Design and Supervision Consultants/Project Implementation Consultants (PDSC/PIC).

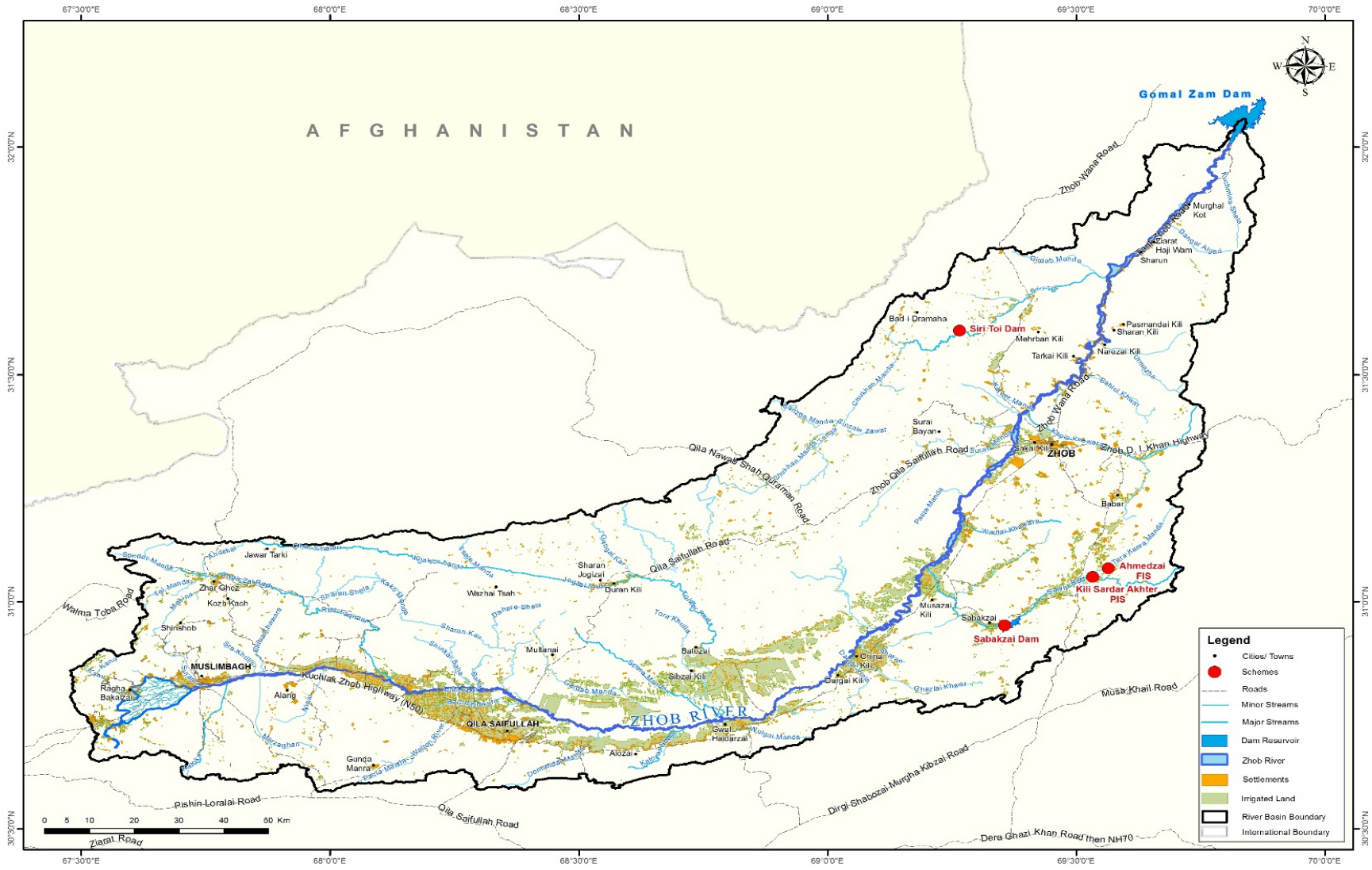
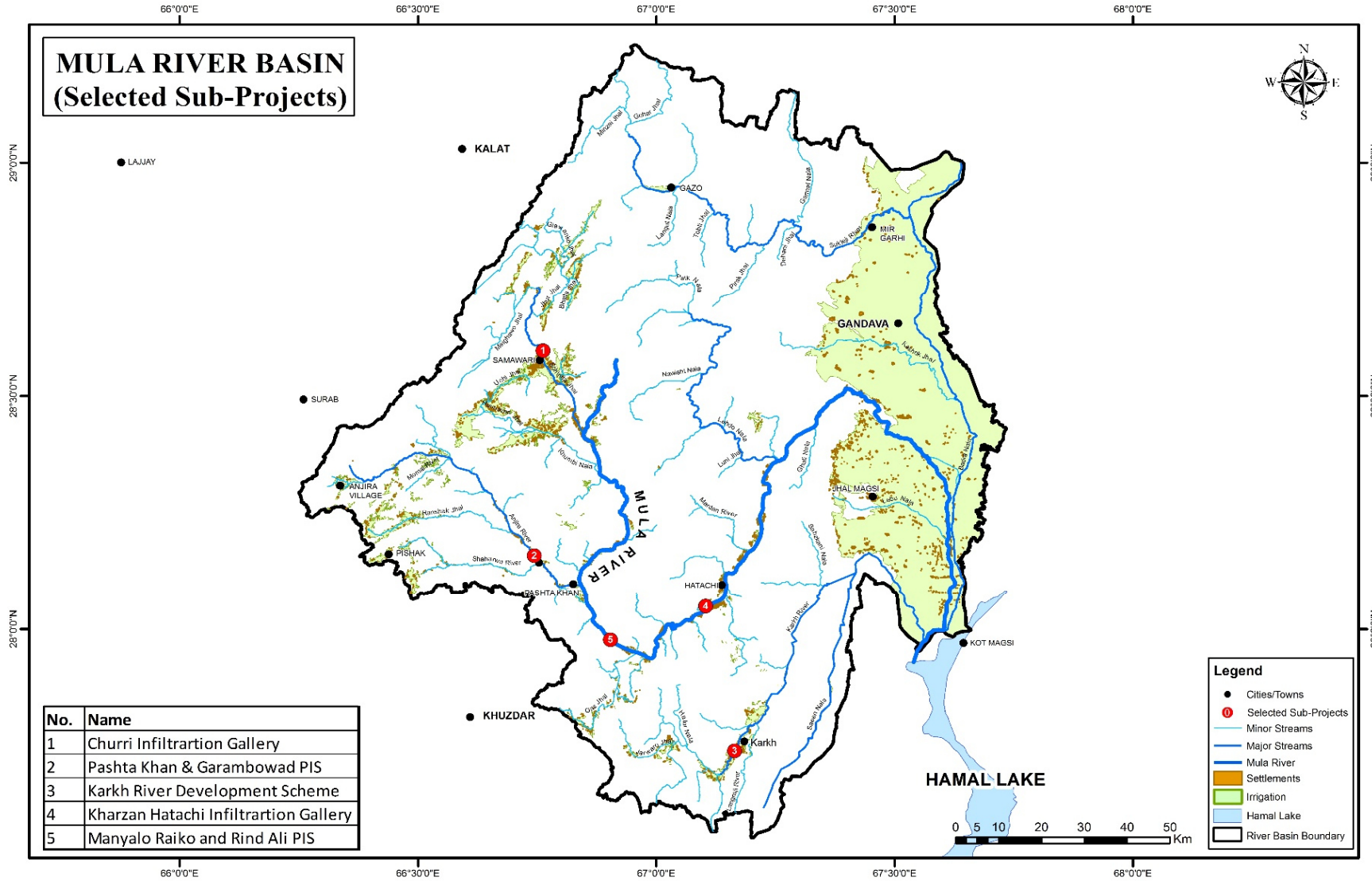


Figure 1- Potential Subprojects for the Zhob River Basin



No.	Name
1	Churri Infiltrartion Gallery
2	Pashta Khan & Garambowad PIS
3	Karkh River Development Scheme
4	Kharzan Hatachi Infiltrartion Gallery
5	Manyalo Raiko and Rind Ali PIS

Figure 2- Potential Subprojects for the Mula River Basin

1.6 Subproject Environmental Screening Criteria

9. Preliminary environmental screening of the above-mentioned sub projects was conducted during the PPTA stage. The screening was carried out following ADB's environmental categorization principles below:

a) **Category A:** A proposed project is classified as category A if it is 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.

b) **Category B:** A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These 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

c) **Category C:** A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. An EIA or IEE is not required, although environmental implications need to be reviewed.

10. The sub projects categorization results are provided in **Table-2:**

Table 2: Indicative Environmental Categorization of Interventions with respect to ADB Regulations

Sr.No	Intervention	Category A	Category B	Category C
Mula River Basin				
1	Churri Infiltration Gallery	-	☑	-
2	Manyalo, Raiko and Rind Ali PIS Scheme	-	☑	-
3	Pashta Khan PIS Scheme	-	☑	-
4	Karakh Valley Development Scheme (Core Sub-Project)	-	☑	-
5	Kharzan Hatachi Infiltration Gallery (Core Sub-Project)	-	☑	-
Zhob River Basin				
1	Sri Toi Dam (Core Sub-Project)	☑	-	-
2	Ahmedzai PIS + FIS (Weir) Scheme	-	☑	-
3	Killi Sardar Akhtar PIS Scheme	-	☑	-
4	Sabakzai Command Area Development	-	☑	-

11. As can be seen from the above table, all the potential sub projects/schemes in Mula River Basin are classified under ADB guidelines/rules as Category 'B'.

12. In Zhob River basin out of four (04) interventions, only Sri Toi Dam which is also a core sub project is classified under ADB guidelines/rules as Category 'A'. The remaining three (03) interventions are classified as Category 'B'.

13. Moreover, the potential sub projects screening criteria also considered the provisions as provided in Schedules I and II of the National Environmental IEE and EIA Review Regulations (2000) for Water Management, Dams. Irrigations and Flood Protection Projects. Again, Sri Toi Dam sub project required preparation of an EIA study whereas all other sub projects require preparation of an IEE study.

14. The above-mentioned categorization has been done based on the existing information available during EARF preparation. The final categorization will be done after detailed information for each sub project is available as well as after carrying out the Rapid Environmental Assessment Checklist (REA, sample provided in **Annexure-1**) for each sub project. Moreover, environmental categorization for any additional sub projects identified later will also be conducted using the relevant national and ADB environmental requirements.

2 Legal and Policy Framework

2.1 Environmental Legislation of Pakistan

15. The Constitution of Pakistan does not mention environmental protection per se, however, its Concurrent Legislative List had "Environment and Ecology" as a subject on which both the federal and provincial legislatures could make laws. After the 18th Constitutional Amendment in 2010, environment as a subject has been fully devolved to the provinces; hence making the environmental legislation a provincial responsibility. However, Pakistan has a rich history of environmental legislation. Its main legal and regulatory instruments include:

a) Pakistan Environmental Protection Act, 1997. Ministry of Environment, Government of Pakistan. Enacted 6 Dec 1997. It is currently applicable to the Islamabad Capital Territory, and the Federally Administered Tribal Areas (FATA).

b) Punjab Environmental Protection Act, 1997. Enacted through Punjab Environmental Protection (Amendment) Act, 2012. Notified on 18 Apr 2012.

c) Balochistan Environment Protection Act, 2012. Government of Balochistan. Enacted 15 Jan 2013.

d) Sindh Environmental Protection Act, 2014. Government of Sindh. Enacted 24 Feb 2014.

e) Khyber Pakhtunkhwa Environmental Protection Act, 2014. Government of Khyber Pakhtunkhwa. Enacted 11 Dec 2014.

f) Pakistan Environmental Protection Agency Review of Initial Environmental Examination and Environmental Impact Assessment Regulations, 2000. Notified 13 Jun 2000.

g) Pakistan Environmental Assessment Procedures, 1997. Pakistan Environmental Protection Agency, Government of Pakistan.

h) Guidelines for the Preparation and Review of Environmental Reports, 1997. Pakistan Environmental Protection Agency, Government of Pakistan.

i) Guidelines for Public Consultation, 1997. Pakistan Environmental Protection Agency, Government of Pakistan.

j) Guidelines for Sensitive and Critical Areas, 1997. Pakistan Environmental Protection Agency, Government of Pakistan.

k) National Environmental Quality Standards (NEQS) for industrial and municipal liquid effluents, industrial gaseous emissions, motor vehicle exhaust and noise, ambient air, drinking water quality and noise.

16. The abovementioned federal and provincial environmental laws provide for Environmental Protection Agency (EPA) to be established with the authority and responsibility for safeguarding environment through implementing the relevant Environmental Protection Act; making rules and regulations, and issuing guidelines; establishing National Environmental Quality Standards (NEQS); receiving, registering, reviewing and taking a decision on the environmental assessment reports; monitoring compliance of environmental approvals and Environmental Management Plans; checking the pollution, imposing penalties, and initiating litigation against them; and developing state of the environment report and raising awareness about environmental issues in their respective territorial jurisdictions.

17. In addition to the above legislation, which is specifically related to the environmental assessment process, other environment related policies, guidelines and legislation applicable in Pakistan are provided in **Table-3** below:

Table 3: National Environmental Legislations, Policies and Guidelines

Legislation/Guideline	Description
National Environmental Policy (2005) (NEP)	NEP is the primary policy of Government of Pakistan addressing environmental issues. The broad Goal of NEP is, "to protect, conserve and restore Pakistan's environment in order to improve the quality of life of the citizens through sustainable development". The NEP identifies a set of sectoral and cross-sectoral guidelines to achieve its goal of sustainable development. It also suggests various policy instruments to overcome the environmental problems throughout the country.
The Forest Act (1927)	The Act empowers the provincial forest departments to declare any forest area as reserved or protected. It empowers the provincial forest departments to prohibit the clearing of forest for cultivation, grazing, hunting, removing forest produce, quarrying and felling, lopping and topping of trees, branches in reserved and protected forests. No protected forest is situated in the sub-project area.
Provincial Wildlife Protection Ordinances	It empowers the government to declare certain areas reserved for the protection of wildlife and control activities within in these areas. It also provides protection to endangered species of wildlife. As no activities are planned in these areas, no provision of this law is applicable to the proposed project.
The Antiquities Act (1975)	It ensures the protection of Pakistan's cultural resources. The Act defines "antiquities" as ancient products of human activity, historical sites, or sites of anthropological or cultural interest, national monuments, etc. The Act is designed to protect these antiquities from destruction, theft, negligence, unlawful excavation, trade, and export. The law prohibits new construction in the proximity of a protected antiquity and empowers the GOP to prohibit excavation in any area that may contain articles of archaeological significance. Under the Act, the subproject proponents are obligated to ensure that no activity is undertaken in the proximity of a protected antiquity, report to the Department of Archaeology, GOP, any archaeological discovery made during the course of the project.
Pakistan Penal Code (1860)	It authorizes fines, imprisonment or both for voluntary corruption or fouling of public springs or reservoirs so as to make them less fit for ordinary use.
NATIONAL ENVIRONMENTAL AND CONSERVATION STRATEGIES	
Biodiversity Action Plan	The plan recognizes IEE/EIA as an effective tool for identifying and assessing the effects of a proposed operation on biodiversity.
Environment and Conservation	There is a well-established framework for environmental management in Pakistan. The Ministry of Environment deals with environment and biological resources. Within the ministry,

Legislation/Guideline	Description
	the NCS unit established in 1992 is responsible for overseeing the implementation of the strategy. Two organizations, the Pakistan Environmental Protection Council (PEPC) and the Pak EPA are primarily responsible for administering the provisions of the PEPA, 1997. The PEPC oversees the functioning of the Pak EPA. Its members include representatives of the government, industry, non-governmental organizations and the private sector. The Pak EPA is required to ensure compliance with the NEQS, establish monitoring and evaluation systems, and both identify the need to and institution of legislations whenever necessary. It is thus the primary implementing agency in the hierarchy. The Provincial Environmental Protection Agencies are formed by the respective provinces.
INTERNATIONAL CONVENTIONS	
The Convention on Conservation of Migratory Species of Wild Animals (1981.21)	The Convention requires countries to take action to avoid endangering migratory species. The term "migratory species" refers to the species of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries. The parties are also required to promote or cooperate with other countries in matters of research on migratory species. There are no endangered species of plant life or animal life in the vicinity of the proposed sub-project.
Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973)	The convention requires Pakistan to impose strict regulation (including penalization, confiscation of the specimen) regarding trade of all species threatened with extinction or that may become so, in order not to endanger their survival further.
International Union for Conservation of Nature and Natural Resources Red List (2000)	Lists wildlife species experiencing various levels of threats internationally. Some of the species indicated in the IUCN red list are also present in the wetlands of Pakistan.

18. Under section 12 of 1997 Act, a project falling under any category specified in schedule I (S.R.O 339(1)/2000), requires the proponent to file an IEE with concerned federal or provincial environment agency (in this case the Balochistan Environment Protection Agency). Similarly, project falling under schedule II requires the proponent to file EIA. The regulation states that IEE is required for federal or provincial irrigation projects with a total cost of less than Rs. 50 million and/or project serving less than 15,000 hectares and/or dam/reservoirs with storage volume less than 50 million cubic meters, of surface area less than 8 square kilometers. An EIA on the other hand is required for all other projects and also for the projects situated in environmentally sensitive areas. Summary of IEE and EIA for Water Management, Dams, Irrigation and Flood Protection projects as per IEE and EIA Review Regulations (2000) is presented in **Table 4** and **5**.

Table 4: Schedule I Water Sector Projects requiring an IEE

F.	Water Management, Dams, Irrigation and Flood Protection	**1.** Dams and reservoirs with storage volume less than fifty million cubic meters or surface area less than eight square kilometers. **2.** Irrigation and drainage projects serving less than fifteen thousand hectares. **3.** Small-scale irrigation systems with total cost less than fifty million rupees.

Table 5: Schedule II Water Sector Projects requiring an EIA

F.	Water Management, Dams, Irrigation and Flood Protection	**1.** Dams and reservoirs with storage volume of fifty million cubic meters and above or surface area of eight square kilometers and above. **2.** Irrigation and drainage projects serving fifteen thousand hectares and above.
I.	Environmentally Sensitive Areas	**1.** All projects situated in environmentally sensitive areas

19. As mentioned above that the PEPA has entrusted the authority of review and to approve environmental assessments to the provincial EPA. The proposed project falls under the jurisdiction of the Balochistan Environmental Protection Agency (BEPA). Individual project components will need to be assessed in the form of either Initial Environmental Examination, or Environmental Impact Assessment. These IEE / EIA reports will be submitted to the BEPA for its review and grant of the NOC. Under the Act, the EPA will process the application within four (4) months of its submission.

2.2 ADB's Safeguard Policy Statement (SPS) and other relevant policies

20. The goal of the ADB's Safeguard Policy Statement (SPS) is to promote the sustainability of project outcomes by protecting the environment and people from projects' potential adverse impacts. Among the objectives of ADB's safeguards are:

(i) Avoidance of adverse impacts of projects on the environment and affected people, where possible;

(ii) Minimizing, mitigating, and/or compensating for adverse project impacts on the environment and affected people when avoidance is not possible.

21. ADB's SPS sets out the policy objectives, scope and triggers, and principles for three key safeguard areas:

(i) Environmental safeguards,

(ii) Involuntary resettlement safeguards, and
(iii) Indigenous Peoples safeguards.

22. ADB Policy Principles are summarized in a **Table 6** below:

Table 6: ADB's Policy Principles

	Policy principle	**Summary**
1	Screening and categorization	Initiate screening process early to determine the appropriate extent and type of environmental assessment.
2	Environmental assessment	Conduct an environmental assessment to identify potential impacts and risks in the context of the project's area of influence.
3	Alternatives	Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts, including no project alternative.
4	Impact mitigation	Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts. Prepare an environmental management plan (EMP).
5	Public consultations	Carry out meaningful consultation with affected people and facilitate their informed participation. Involve stakeholders early in the project preparation process and ensure that their views and concerns are made known to and understood by decision makers and taken into account. Continue consultations with stakeholders throughout project implementation. Establish a grievance redress mechanism.
6	Disclosure of environmental assessment	Disclose a draft environmental assessment in a timely manner, in an accessible place and in a form and language(s) understandable to stakeholders. Disclose the final environmental assessment to stakeholders.
7	Environmental management plan	Implement the EMP and monitor its effectiveness. Document monitoring results, and disclose monitoring reports.
8	Biodiversity	Do not implement project activities in areas of critical habitats.
9	Pollution prevention	Apply pollution prevention and control technologies and practices consistent with international good practices. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges. Avoid the use of hazardous materials subject to international bans or phaseouts.

	Policy principle	Summary
10	Occupational health and safety. Community safety.	Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities
11	Physical cultural resources	Conserve physical cultural resources and avoid destroying or damaging them. Provide for the use of "chance find" procedures.

23. ADB's Public Communication Policy (2011) aims to enhance stakeholders' trust in and ability to engage with ADB, and thereby increase the development impact of ADB operations. The policy promotes transparency, accountability, and participatory development. It establishes the disclosure requirements for documents ADB produces or requires to be produced.

24. ADB's Accountability Mechanism Policy's (2012) objectives is to provide an independent and effective forum for people adversely affected by ADB-assisted projects to voice their concerns and seek solutions to their problems, and to request compliance review of the alleged noncompliance by ADB with its operational policies and procedures that may have caused, or is likely to cause, them direct and material harm. The Accountability Mechanism a "last resort" mechanism.

25. A comparative analysis, based on a summary equivalence assessment which compared Pakistan's legal and regulatory framework to the ADB Safeguard Policy (2009)[1], found that the law and regulations provide little detail on principles of environmental impact assessment, the environmental impact assessment procedures for preparation of environmental assessment reports, and requirements for implementation of environmental terms and conditions of approvals. This is left to the Guidelines for the Preparation and Review of Environmental Reports, 1997, Guidelines for Public Consultation, 1997; and Guidelines for Sensitive and Critical Areas, 1997. In addition, more technical guidance is provided in various sector guidelines.

26. The analysis found that the Pakistan Environmental Safeguards System has full equivalence with the Environment Safeguards of the ADB SPS with respect to (i) objective; (ii) scope and triggers; (iii) examination of alternatives; and (iv) disclosure of draft and final environmental assessment reports (including the environmental management plan). At the same time, partial equivalence was found with respect to (i) screening; (ii) conducting an environmental impact assessment, (iii) avoiding, minimizing, mitigating and/or offsetting adverse impacts, enhancing positive impacts, and preparing an environmental management plan; (iv) carrying out meaningful consultation; (v) implementing the environmental management plan and monitoring its effectiveness; (vi) prohibiting implementation of projects in areas of critical habitats; (vii) applying pollution prevention and control technologies; (viii) provision of occupational health and safety, and establishing preventative and emergency preparedness and response measures; and (ix) conserving physical cultural resources.

[1] The analysis was conducted under TA 7548-REG: Improving the Implementation of Environmental Safeguards in Central and West Asia.

27. To meet the requirements for screening and categorization, the national and ADB SPS 2009 environmental requirements shall be reviewed and the more stringent amongst them shall be followed. Moreover, the national as well as ADB SPS 2009 environmental requirements will also be followed during preparation of environmental impact assessments; environmental planning and management, disclosure; consultation and participation.

28. To meet the requirements for environmental management of implementation, environmental and social management systems are to be established in the EAs/IAs.

2.3 World Bank Group Environmental Health and Safety Guidelines (EHS Guidelines)

29. During the design, construction, and operation of the project the EA will apply pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World Bank Group's Environment, Health and Safety Guidelines[2]. These standards contain performance levels and measures that are normally acceptable and applicable to projects. When Pakistan regulations differ from these levels and measures, EA will achieve whichever is more stringent.

[2] http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

3 Anticipated Environmental Impacts

3.1 Proposed Project Interventions

30. The Project will manage the risks of two major climatic extremes faced by the inhabitants of the two river basins i.e. Flood and Drought. Floods have a key role in water resources management. Historic data of precipitation and stream flows will be used to evaluate the flood scenarios. Flood protection techniques will be evaluated such as rangeland management, spate irrigation, dikes and spurs, etc. at vulnerable regions. Water storage in storage dams and groundwater will be proposed for utilizing floodwater for irrigation and protecting the downstream from inundation. This phase will also cover management of risks associated with the floods in the selected core sub-projects. Similarly, in case of drought in near future, practices will be suggested in order to use the available stored water efficiently, such as deficit irrigation which is one of the most efficient systems in a water scarce situation. This practice will provide water to sustain the command area for drought years. Therefore, there is a need for pronouncing drought management practices in advance in terms of accomplishing the tasks of irrigation, water supply, and other routine consumption of water usage. During droughts, availability of surface water reduces significantly and thus in persistent droughts the groundwater is only a reliable resource to manage the risks of droughts.

31. The indicative list of representative sub-projects for both the river basins are given in Table 7.

Table 7: Indicative Schemes of Mula and Zhob River Basins

Sr.No	Intervention	Design Command Area (Hectare)
Mula River Basin*		
1	Churri Infiltration Gallery	800
2	Manyalo, Raiko and Rind Ali PIS Scheme	678
3	Pashta Khan PIS Scheme	833
4	Karakh Valley Development Scheme	2,250
5	Kharzan Hatachi Infiltration Gallery	681
Zhob River Basin*		
1	Sri Toi Dam Core Sub-Project	4,027
2	Ahmedzai PIS + FIS (Weir) Scheme	607
3	Killi Sardar Akhtar PIS Scheme	230
4	Sabakzai Command Area Development	3,000

* The development also includes Farmers Managed PIS / FIS Scheme Improvements for the two river basins

3.2 Anticipated Environmental Impacts

32. This sub-section discusses the type and range of impacts that would be generated by the interventions proposed as sub-project activities. It is anticipated that beside significant positive

environmental impacts associated with the project, the program can potentially have adverse environmental impacts typical for design construction and operation phases.

33. The environmental impacts of improved coordination in basin water resources management, watershed management, improved climate resilience, and ecosystem improvements are expected to be highly positive overall; likely environmental benefits include reduced soil erosion and land degradation, reduced risk of flash floods, reduced risk of the basin running dry during an extended drought, and improved forest conservation and restoration. Environmental considerations will be given major attention in planning, as well as major civil works, to ensure that any adverse environmental impacts are minimized and adequately mitigated.

34. It should be noted that the impacts description needs to be based on two major background parameters, namely: intervention specification; location of intervention. This is not to suggest that other important parameters do not exist, but these two composite parameters are the core for defining and evaluating the impacts of any intervention.

3.2.1 Impacts during Design and Planning Phase

35. **Land Acquisition**: Construction of various civil works might require land acquisition. In the proposed interventions, land requirement is medium to high and it should be fulfilled through Government lands. However, a detailed land acquisition policy should be established to deal with land acquisition in case private land acquisition requirement comes to fore.

36. **Water Rights:** Most of the significant environmental impacts of the project can be addressed at the design phase in water rights. Serious consideration of the traditional water rights, coupled with continual two-way communication with the local population will be necessary, to ensure that their perceptions about the project remain realistic, rational, and positive. Reasons of failure of previous interventions will also be studied to avoid repetition of mistakes.

37. **Poor Maintenance:** Efficiency of the dam, weirs and infiltration galleries will be at its best by adopting proper maintenance activities such as silt removal and bed scratching at periodical intervals. To overcome the problem of reduction of recharge due to silting, water from the dam can be released at periodical intervals so as to increase the recharge through the downstream side.

38. **Ground Water Quality Degradation:** It is generally observed by many researchers that groundwater quality improves within the vicinity such development (e.g. a dam). However, impact on groundwater quality depends on the quality of water. It is important to maintain the quality of water by taking suitable precautions like preventing discharge from the nearby agricultural lands, release of domestic wastes, sewage, dumping of wastes etc.

39. **Flood regime:** Uncontrolled floods cause tremendous damage and flood control is therefore often an added social and environmental benefit of reservoirs built to supply irrigation water. However, flood protection works, although achieving their purpose locally, increase flooding downstream, which needs to be considered.

40. **Changes to River Morphology:** Changes to the river morphology may result due to changes in the sediment carrying capacity of the floodwaters. This may be either a positive or negative impact. As with low flows, the operation of dams offers excellent opportunities to mitigate the potential negative impacts of changes to flood flows. The designation of flood plains may also

be a useful measure that allows groundwater recharge and reduces peak discharges downstream. Upstream water regulation might result in disruptions to aquatic life etc**.**

41. **Disturbance to Natural Drainage Pattern**: It is important that the newly developed irrigation infrastructure does not adversely affect the natural drainage pattern.

3.2.2 Impacts during Construction Phase

42. Construction activities for any project mainly include land clearing, excavation, filling, disposal of spoil, construction of actual intervention (canals) and civil works. Conventional methods of infrastructure development on sensitive terrains without due consideration to environmental impacts, can result in adverse impacts, which include:

a) Increase the possibility of soil erosion;

b) Degradation of agricultural lands, loss or damage of vegetation, forests or wildlife and damage to private property, including houses and commercial buildings;

c) Existing local infrastructure such as water supply lines, irrigation channels, and cultural sites are at risk of damage during construction;

d) Dust and emissions arising during construction activities can be a source of nuisance for locals and effect nearby vegetation. During construction, dust emissions can arise from earthworks such as levelling and land clearing for the establishment of access tracks and construction campsite areas; transportation of soil in dumper trucks; stored stock piles; construction of bunds; movement of vehicles over unpaved portions of the access tracks, off-track travel and over speeding etc.;

e) Disturbance to communities and traffic hurdle due to the operation of heavy equipment and the presence of a certain number of workers not belonging to the local communities;

f) Damage to buildings of cultural or religious significance, such as shrines or mosques as a result of poor construction management and carelessness of construction crew;

g) Construction camp site can be a cause of disturbance to the communities due to the presence of a large number of workers who may not belong to the area;

h) Drainage pattern in the area may be disturbed as a result of construction activities;

i) Health and safety issues concerning labor members from the local communities may arise;

j) Disturbance to local wildlife and wildlife sanctuaries. Disturbance to any sensitive species of flora or fauna due to the construction activities;

k) Disturbance to local women due to the presence of workers during the operation.

3.2.3 Impacts during Operation Phase

43. This will be the stage where major impacts, both positive and negative, can surface, and the earlier predictions could be validated. This phase will comprise of commissioning the interventions. Most important component of this stage would be the filling of water storage dams. While the operations stage entails mostly engineering activities, it has an equally important requirement of inter-departmental coordination, for harvesting the full potential of positive impacts of the project.

44. Some of the operation phase impacts are as follows:

a) Enhanced induced use of fertilizers and pesticides;
b) Dam safety concerns;
c) Localized impacts from reduction of flows due to small-scale irrigation development;
d) Disturbance to and small-scale loss of wildlife habitats;
e) Changes in water flows and levels;
f) Changes in main channel flow regimes;
g) Water rights issues if traditional and ongoing water rights mechanism will not be maintained.

3.2.4 Cumulative Impacts

45. The Project is intended to improve the management of water and other natural resources within the Mula and Zhob River Basins. The cumulative impacts are intended—and expected—to be highly positive overall from an environmental and social standpoint.

46. Poorly-planned development, especially major investments, in the Mula and Zhob River Basins through sectoral interventions such as irrigation could cause significant cumulative impacts in the form of foreclosure of future water uses, or over-commitment of water resources and resulting reduced reliability in water supply. Major interventions could also have associated induced impacts, such as pollution from enhanced agro-chemical use with irrigation development.

47. The preparation phase (e.g. surveys, pre-feasibility, feasibility, or design studies) could have some induced or cumulative impacts depending on the type, location, and scale. The project would support the holistic preparation, including not only the technical studies, but environmental impacts assessment studies.

48. Catchment management activities could have some induced and cumulative impacts, for example small-scale dams or irrigation pilots could be replicated in unsustainable ways in additional inappropriate locations, and both capacity-building and awareness-raising programs will be needed in this regard.

49. It is also possible that the Project could set in motion a series of activities that have a more virtuous set of positive cumulative or induced impacts. Successful paradigms demonstrated under this project in targeted areas may be significantly scaled-up in future. Basin planning approaches can be developed for other basins in the Country. Enhancing the knowledge base and capacity in key water and land related institutions can manifest themselves beyond their expected role in the project to more effectively manage their other activities.

4 Environmental Assessments for Sub Projects

50. The following general criteria will be adopted for selection of the subprojects:

(i) The subprojects shall only be selected from BID priority lists for the Mula and Zhob River Basins;

(ii) The subprojects shall only involve activities that follow all the government regulations;

(iii) Subprojects including activities listed in ADB's Prohibited Investment Activities List (ADB SPS's Appendix 5) do not qualify for ADB's financing;

(iv) Subprojects which have not prepared an EIA or an IEE in accordance with this EARF and Safeguard Requirements 1 of SPS 2009, identified all the key potential environmental and social impacts and risks, and incorporated effective measures to avoid, minimize, mitigate of compensate for the adverse impacts into an EMP and project design do not qualify for ADB's financing.

(v) Subprojects that are deemed highly complex and sensitive in accordance with SPS do not qualify for ADB's financing.

51. A final check on conformity with the selection criteria will be the submission of selected subprojects for ADB's clearance. Any subproject, which does not meet the general criteria listed above may be rejected.

52. Preliminary assessment of the BWRDP assumes both Category B and Category A subprojects. All subprojects will be subject to environmental assessment process (Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA). Depending on the significance of project impacts and risks, the assessment may comprise a full-scale environmental impact assessment (EIA) for category A projects, an initial environmental examination (IEE) or equivalent process for category B projects, or a desk review for Category C projects [3].

4.1 Requirements to Environmental Screening and Classification

53. All subprojects to be included in the Sector Loan will be screened to determine their environmental category. Categorization is to be undertaken using Rapid Environmental Assessment (REA) checklists (template of the REA is given in **Annexure 1**), consisting of screening questions relating to (i) the sensitivity and vulnerability of environmental resources in project area, and (ii) the potential for the project to cause significant adverse environmental impacts. Projects are classified into one of the following environmental categories:

a. **Category A**: A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse or unprecedented. These impacts may affect an area lager than the sites or facilities subject to physical works. An environmental impact assessment (EIA) is required.

b. Category B: A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can

[3] Based on a preliminary assessment of 11 indicative subprojects, it is anticipated that only one subproject (i.e. Siri Toi Dam) will require preparation of an EIA study with others requiring preparation of an IEE study.

be designed more readily than for category A projects. An initial environmental examination (IEE) is required.

c. **Category C**: A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.

54. Categorization is to be based on the most environmental sensitive component, which means that if one subproject is with potential for significant adverse environmental impacts, then the Project is to be classified as Category A regardless of potential environmental impacts of other components of the project. In general, criteria that can trigger project's 'Category A' are as follows:

(i) Dams and reservoirs with storage volume of fifty (50) million cubic meters and above or surface area of eight (8) square kilometers and above;

(ii) Dams with a height of greater than fifteen (15) meters;

(iii) Irrigation and drainage projects serving fifteen thousand (15,000) hectares and above;

(iv) Sub project requires a complex mitigation measure that needs to be prepared through an in-depth assessment of the impacts and detailed study for preparing mitigation measures;

(v) Sub project will have an impact on an ecologically sensitive area, particularly if the same located in buffer or core zone of any designated specially protected areas, or area of international significance (such as Ramsar site) or cultural heritage and archaeological sites designated by UNESCO and Ministry of Culture;

55. Irrigation subprojects that do not fall into the above category will be classified as 'Category B' thus requiring preparation of an IEE study.

56. Moreover, to meet the requirements for screening and categorization, the national and ADB SPS 2009 environmental requirements shall be reviewed and the more stringent amongst them shall be followed.

4.2 Requirements to Environmental Assessments and Environmental Management Plans

57. Environmental assessment of the Project will be fulfilled in accordance with the Safeguard Requirement 1 (Environment) of ADB's SPS[4] as well as the national environmental regulations. At an early stage of each sub project preparation, BID will identify potential direct, indirect, cumulative and induced environmental impacts on and risks to physical, biological, socioeconomic, and physical cultural resources and determine their significance and scope, in consultation with stakeholders, including affected people, women, and concerned NGOs. If potentially adverse environmental impacts and risks are identified, BID will undertake an environmental assessment as early as possible in the project cycle. For sub projects with potentially significant adverse impacts that are diverse, irreversible, or unprecedented, BID will examine alternatives to the project's location, design, technology, and components that would avoid, and, if avoidance is not possible, minimize adverse environmental impacts and risks. The rationale for selecting the subproject location, design, technology, and components will be properly documented, including, cost-benefit analysis, taking environmental costs and

[4] https://www.adb.org/sites/default/files/institutional-document/32056/safeguard-policy-statement-june2009.pdf

benefits of the various alternatives considered into account. The "no action" alternative will be also considered.

58. Environmental assessment should include description of environmental and social baseline to provide an understanding of current conditions forming the benchmark against which project impacts are assessed. Both primary and secondary data can be used in environmental assessment. Baseline information should be provided in quantitative terms to the extent possible.

59. Impacts and risks will be analysed in the context of each subproject's area that encompasses:

(i) The primary sub project site location, in the context of local ecology and associated biodiversity;
(ii) Areas and communities potentially affected by cumulative impacts of the sub project, and other sources of similar impacts in the geographical area; and
(iii) Areas and communities potentially affected by impacts from unplanned but predictable developments caused by the sub project that may occur later or at a different location.

60. Environmental impacts and risks will also be analysed for all relevant stages of the project cycle, including design and planning stage, construction, operations, decommissioning, and post closure activities such as rehabilitation or restoration. The structure and composition of the typical Environmental Assessment Report is provided in **Annexure-2**.

61. BID will prepare an environmental management plan (EMP) that addresses the potential impacts and risks identified by the environmental assessment. The EMP will include the proposed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators.

62. BID should ensure that ADB be given access to undertake environmental due diligence for all sub projects. However, BID has the main responsibility for undertaking environmental due diligence and monitoring the implementation of environmental mitigation measures for all sub projects. The due diligence report as well as monitoring reports on implementation of the environmental management plan needs to be documented systematically and be available to the public, if requested.

5 Consultation, Information Disclosure and Grievance Redress Mechanism

5.1 Public Consultation

64. For each of the subprojects BID will organize consultations with project affected people and other stakeholders. The types and level of consultation need to be commensurate with the impacts on affected communities. Consultation will be based on the following principles:

(i) Early start in the subproject preparation stage and continuation throughout the subproject cycle;
(ii) Timely disclosure of relevant information in a comprehensible and readily accessible to affected people format;
(iii) Ensuring the absence of intimidation or coercion during public consultation;
(iv) Gender inclusive and responsive with focus on disadvantaged and vulnerable groups, and
(v) Enabling the integration of all relevant views of affected people and stakeholders into decision-making.

65. BID has organized public consultations for the 3 core sub projects. The materials of the consultations have been documented and included in the respective EIA and IEE reports.

5.2 Information and Disclosure

66. BID and ADB agree that in disclosing environmental information for each of the sub project to the public:

(i) BID is responsible for ensuring that all environmental assessment documentation, including the environmental due diligence and monitoring reports, are properly and systematically kept as part of project-specific record;
(ii) All environmental documents are subject to public disclosure, and therefore be made available to public;
(iii) For ADB's category-A subprojects, the draft EIAs will be disclosed to the public through ADB's websites 120 days prior ADB board consideration. The EIA/IEE should be reviewed by ADB before it is disclosed to the public; and
(iv) BID will ensure that meaningful public consultations, particularly with project affected persons, are undertaken during the IEE/EIA preparation process for the future sub projects, and the relevant EIAs/IEEs are locally disclosed (in libraries, local administrations, etc.).

5.3 Grievance Redress Mechanism

67. This section describes mechanism to receive and facilitate the resolution of affected persons' concerns and grievances. It explains how the procedures are accessible to aggrieved party (AP) including women. A grievance mechanism will be available to allow an AP appealing any disagreeable decision, practice or activity arising from land or other assets compensation. APs will be fully informed of their rights and of the procedures for addressing complaints whether verbally or in writing during consultation, survey, and time of compensation. It is preferred that APs/local community should submit their complaints/ concerns and issues formally and accordingly the project staff will enter the complaint on Community Complaint

Register (CCR) comprising of a minimum information such as the name and address of complainer, description of complaint, action taken, status of resolution of complaints and other necessary information/ record and reasons; in case the issue is not resolved. Proper consideration will be given to avoid the grievances rather than going through a redress process.

68. A Grievance Redress Committee (GRC) will be established at both project and field level. GRC at project level will include the Project Director, representative of PIU/ BID, Social Safeguards staff of BID, representatives of APs/ or local community and representatives of concerned FO (if any).

69. The GRC at project level will include the following members:

(i) PD (BID);
(ii) Representative (Project Implementation Unit); and
(iii) Representative of AP / FO

70. This GRC will work both at the project and field level. The District level BID staff will inform the aggrieved party about GRC and mechanism by registering their concerns at concerned office. The complaints will be registered by maintaining community complaints register (CCR), where the name & address of complainer, date, description of complaint and action taken will be entered.

71. The GRC at field (District) level will include:

(i) Executive Engineer / Sub-Engineer
(ii) Social Mobilizer
(iii) Patwari (land record keeper)
(iv) Representative of AP/ FO

Table 8: Community Complaints/ Grievance Redress Process

Land Compensation Issues	Other Items Compensation Issues
• First, complaint resolution will be attempted at site (field level) through the involvement of the PIUs/ informal committee/ and or concerned FO (if any).	• First, complaints resolution will be attempted at site (field level) through the involvement of the PIUs/ informal committee/ and or concerned FO (if any).
• If unsettled, a grievance can then be lodged to the DO (Revenue)/ LAC who has 14 days to decide on the case.	• If no solution is reached, a grievance can be lodged to GRC. The GRC will provide the decision within 3 weeks of registering the complaint.
• If no solution is reached, a grievance can be lodged to GRC. The GRC will provide the decision within 3 weeks of registering the complaint.	• If the grievance redress system does not satisfy the DPs, they can pursue further by submitting their case to the appropriate court of law.

Land Compensation Issues	Other Items Compensation Issues
• In case, the grievance redressal system does not satisfy the DFs/ DPs, then they can pursue further by submitting their case to the appropriate court of law as per the process set out in Section 18 to 22 of the LAA 1894.	

6 Institutional Arrangements and Implementation

6.1 Roles and Responsibilities

72. To prepare the follow-up subprojects and to comply with ADB's Safeguard Policy Statement (2009) and the Pakistan environmental legislations, BID and ADB agreed on the following:

6.1.1 Balochistan Irrigation Department

73. BID will take the following responsibilities:

a. Prepare environmental screening checklists and classify potential subprojects;
b. Based on the environmental classification of the subprojects, prepare the terms of reference to conduct an IEE or an EIA study (outline of an environmental assessment report is shown in **Annexure 2**);
c. Hire an environmental consultant or firm to prepare an IEE or EIA report, including an EMP for disclosure;
d. Undertake an initial review of the IEE or EIA;
e. Submit the IEE or EIA report and the review form to ADB as part of the approval of subproject;
f. Ensure that all regulatory clearances are obtained before starting civil works for the subproject;
g. Submit to ADB all the required clearances/certificates obtained from the relevant Government authorities;
h. Ensure that all the mitigation measures required to be implemented during construction are included in the bidding document;
i. Establish an Environment and Social Unit within PMO to monitor the contractors and the implementation of the environmental management measures required for each sub-project;
j. Require the contractor to prepare site-specific EMPs for operations that includes a sub-plan for each of the work areas;
k. Ensure that no land will be released to the contractor until the SSEMP for that area has been prepared and approved;
l. Require that the contractor employ a suitably qualified or experienced environment specialist on a full-time basis to supervise the implementation of the EMP;
m. Require that the contractor provide awareness training in environmental management for all employees working on the project;
n. Ensure that an environmental management plan, including all proposed mitigation measures and monitoring programs, are properly implemented;
o. Monitor the implementation of environmental management plan and prepare an environmental monitoring report every six month, to be delivered to the ADB;
p. In the case of unpredicted environmental impacts occurring during project implementation, require the contractor to provide and implement a corrective action plan;
q. In case a sub project needs to have its components changed or its environmental category upgraded, consult with ADB to decide whether a supplementary IEE or EIA study is

required. If it is required, prepare the terms of reference for undertaking a supplementary IEE or EIA and hire an environment consultant to carry out the study; and

r. Ensure that meaningful public consultation be undertaken with affected groups, women, and NGOs.

6.1.2 Asian Development Bank

74. ADB will have the following responsibilities:

a. Review the IEE or EIA reports as a basis for the approval of each sub project.
b. Disclose the final IEE or draft full EIA (at least 120 days prior to ADB Board consideration) and Final EIA, and/or environmental assessment and review framework before project appraisal, a new or updated EIA/IEE and corrective action plan prepared during project implementation, if any, as well as environmental monitoring reports on the ADB website;
c. Monitor the implementation of the EMP and due diligence as part of overall project review mission;
d. Assist BID, if required, in carrying out its responsibilities and safeguard capacity building; and
e. Facilitate the required consultations with project affected groups and local NGOs, and to ensure that the borrower or project sponsor provides relevant information on the project's environmental issues in a form and language(s) accessible to those being consulted.

6.2 Staffing Requirements and Budget

75. A consulting services package on detailed design, construction supervision and implementation support will be recruited to prepare IEE's / EIA's for the non-core sub projects among other tasks.

76. The subprojects' environmental costs need to incorporate a budget and resources to (i) implement the environmental review and screening procedure, (ii) undertake the IEE/EIA studies for the follow-up subprojects, (iii) conduct stakeholder's consultations, (iv) monitor the implementation of EMPs, and (v) undertake environmental mitigation measures as required.

77. The costs of conducting training, undertaking monitoring, procuring laboratory equipment for instrumental monitoring, hiring environmental consultants, and implementing the environmental impact assessment and review framework needs also to be incorporated in the subprojects' budgets.

6.3 Capacity Building of EA/IA

78. The capacity of EA/IA in particular the SESU will be enhanced under the Project with respect to implementation of Social and EARF, LARP and EMPs under the project and also to improve EA/IA's capacity in planning, development and operation of water resources management systems with proper consideration to environmental and social issues and participation of stakeholders in order to make water systems sustainable in the long run and generate higher benefits during implementation of the EARF/LARPs and EMPs.

7 Monitoring and Reporting

79. The extent of monitoring activities, including their scope and periodicity, will be commensurate with the project's risks and impacts. BID is required to implement safeguard measures and relevant safeguard plans, as provided in the legal agreements, and to submit periodic monitoring reports (see the template in **Annexure 4**) on their implementation performance. ADB will require BID to:

(i) Establish and maintain procedures to monitor the progress of implementation of EMPs;

(ii) Verify the compliance with environmental measures and their progress toward intended outcomes;

(iii) Document and disclose monitoring results and identify necessary corrective and preventive actions in the periodic monitoring reports;

(iv) Follow up on these actions to ensure progress toward the desired outcomes;

(v) Retain qualified and experienced external experts or qualified NGOs to verify monitoring information for projects with significant impacts and risks; and

(vi) Submit periodic monitoring reports on safeguard measures as agreed with ADB.

80. ADB will carry out the following monitoring actions to supervise sub projects implementation:

(i) Conduct periodic site visits for projects with adverse environmental or social impacts;

(ii) Conduct supervision missions with detailed review by ADB's safeguard specialists/officers or consultants for sub projects with significant adverse social or environmental impacts;

(iii) Review the periodic monitoring reports submitted by BID to ensure that adverse impacts and risks are mitigated as planned and as agreed with ADB;

(iv) Work with BID to rectify to the extent possible any failures to comply with their safeguard commitments, as covenanted in the legal agreements, and exercise remedies to re-establish compliance as appropriate; and

(v) Prepare project completion reports that assesses whether the objective and desired outcomes of the EMPs have been achieved, considering the baseline conditions and the results of monitoring.

A N N E X U R E - 1

R A P I D E N V I R O N M E N T A L A S S E S S M E N T
C H E C K L I S T (S A M P L E)

:

Rapid Environmental Assessment (REA) Checklist

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by the Director, RSES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

Screening Questions	Yes	No	Remarks
A. PROJECT SITING **IS THE PROJECT AREA ADJACENT TO OR WITHIN ANY OF THE FOLLOWING ENVIRONMENTALLY SENSITIVE AREAS?**			
▪ **PROTECTED AREA**			
▪ **WETLAND**			
▪ **MANGROVE**			
▪ **ESTUARINE**			
▪ **BUFFER ZONE OF PROTECTED AREA**			
▪ **SPECIAL AREA FOR PROTECTING BIODIVERSITY**			
B. POTENTIAL ENVIRONMENTAL IMPACTS **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)?			
▪ conflicts in water supply rights and related social conflicts?			

Screening Questions	Yes	No	Remarks
▪ impediments to movements of people and animals?			
▪ potential ecological problems due to increased soil erosion and siltation, leading to decreased stream capacity?			
▪ Insufficient drainage leading to salinity intrusion?			
▪ over pumping of groundwater, leading to salinization and ground subsidence?			
▪ impairment of downstream water quality and therefore, impairment of downstream beneficial uses of water?			
▪ dislocation or involuntary resettlement of people?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ potential social conflicts arising from land tenure and land use issues?			
▪ soil erosion before compaction and lining of canals?			
▪ noise from construction equipment?			
▪ dust during construction?			
▪ waterlogging and soil salinization due to inadequate drainage and farm management?			
▪ leaching of soil nutrients and changes in soil characteristics due to excessive application of irrigation water?			
▪ reduction of downstream water supply during peak seasons?			
▪ soil pollution, polluted farm runoff and groundwater, and public health risks due to excessive application of fertilizers and pesticides?			
▪ soil erosion (furrow, surface)?			
▪ scouring of canals?			
▪ clogging of canals by sediments?			
▪ clogging of canals by weeds?			
▪ seawater intrusion into downstream freshwater systems?			
▪ introduction of increase in incidence of waterborne or water related diseases?			
▪ dangers to a safe and healthy working environment due to physical, chemical and biological hazards during project construction and operation?			

Screening Questions	Yes	No	Remarks
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
▪ social conflicts if workers from other regions or countries are hired?			
▪ 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?			
▪ 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?			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks[5]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):_____

Other Comments:_____
_____

Prepared by: _____

[5] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

A N N E X U R E - 2

O U T L I N E O F E N V I R O N M E N T A L A S S E S S M E N T R E P O R T

Outline of an Environmental Assessment Report

This outline is part of the Safeguard Requirements 1. An environmental assessment report is required for all environment category A and B projects. Its level of detail and comprehensiveness is commensurate with the significance of potential environmental impacts and risks. A typical EIA report contains the following major elements, and an IEE may have a narrower scope depending on the nature of the project. The substantive aspects of this outline will guide the preparation of environmental impact assessment reports, although not necessarily in the order shown.

A. Executive Summary
This section describes concisely the critical facts, significant findings, and recommended actions.

B. Policy, Legal, and Administrative Framework
This section discusses the national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the Project
This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data)
This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

E. Anticipated Environmental Impacts and Mitigation Measures
This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media), and physical cultural resources in the project's area of influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, transboundary, and cumulative impacts as appropriate.

F. Analysis of Alternatives
This section examines alternatives to the proposed project site, technology, design, and operation - including the no project alternative - in terms of their potential environmental impacts; the feasibility of mitigating these impacts; their capital and recurrent costs; their suitability under local conditions; and their institutional, training, and monitoring requirements. It also states the basis for selecting the particular project design proposed and, justifies recommended emission levels and approaches to pollution prevention and abatement.

G. Information Disclosure, Consultation, and Participation

This section:
(i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders;
(ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and (iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

H. Grievance Redress Mechanism

This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

I. Environmental Management Plan

This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

(i) Mitigation:

(a) identifies and summarizes anticipated significant adverse environmental impacts and risks;
(b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and
(c) provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.

(ii) Monitoring:

(a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and
(b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

(iii) Implementation arrangements:

(a) specifies the implementation schedule showing phasing and coordination with overall project implementation;

(b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and

(c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.

(iv) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

J. Conclusion and Recommendation

This section provides the conclusions drawn from the assessment and provides recommendations.

A N N E X U R E - 3

O U T L I N E T E R M S O F R E F E R E N C E F O R
C O N S U L T I N G S E R V I C E S F O R E N V I R O N M E N T A L
A S S E S S M E N T

Outline Terms of Reference for Consulting Services for Environmental Assessment

A. Objectives

The objective of the consulting services is ensuring the environmental soundness and sustainability of the project and supporting the integration of environmental considerations into the project-making process in accordance with ADB's SPS 2009 (Safeguard Requirement 1: Environment), and considering WB Group EHS Guidelines. This will be achieved by conducting environmental impact assessment (EIA) or initial environmental examination (IEE) of the proposed subproject to identify potential environmental impacts on physical, ecological, socioeconomic, and physical cultural resources, and preparing EIA/IEE report with environmental management plan in accordance with the ADB's Safeguard Policy Statement (2009). The indicative duration of an EIA study is 4-6 months[6] and an IEE study – 1.5 – 3 months. A consulting service package on detailed design, construction supervision and implementation support will be recruited to prepare IEEs / EIAs for the non-core subprojects among other tasks.

B. Scope of Work

The consultant's scope of work will include the following tasks:

- Analysis of the background materials. Background materials of the earlier studies including ecological, geotechnical, hydrogeologic, and other relevant studies for each sub-project will be collected from the relevant organizations and analyzed;
- Assessment of Environmental Impacts and Development of Mitigation Measures. An EIA or IEE study to assess potential direct, indirect, cumulative, induced, as well as transboundary and global impacts of the project to physical, biological, socioeconomic, and physical cultural resources during design, construction and operation stages will be conducted. Adverse environmental impacts will be avoided, or where it is not possible
- Examination of Alternatives. Alternatives to the project's location, design, technology, as well as "no project" alternative will be assessed;
- Public consultations. Meaningful public consultations with affected people (at least two rounds consultations for EIA and one consultation for IEE) ensuring participation of all stakeholders including non-governmental organizations, women will be conducted. The list of people attended the consultation, time and locations, subjects discussed during consultation will be recorded in systematic manner and attached in the EIA/IEE report as an appendix;
- Grievance Redress Mechanism will be established;
- Preparation of IEE/EIA report. An EIA/IEE report including executive summary, policy, legal, and environmental framework, description of the project, baseline data, expected environmental impacts and mitigation measures, analysis of alternatives, information disclosure, consultation and participation, grievance redress mechanism, in accordance with ADB's Safeguard Policy Statement (2009);
- Preparation of EMP. Site-specific environmental management plan will be prepared within the framework of this activity.

C. Team Composition and Organization

Composition of an environmental assessment team will depend on the level of environmental assessment required (IEE or EIA), as well as location, type and magnitude of the project. In general, it will be based on the following requirements:

[6] More time should be planned for EIA preparation if seasonal (winter/summer) data needs to be collected.

- both international and domestic specialists will be involved in environmental assessment process;
- in case of an IEE, the team will by composed of, in most cases, environmental specialists;
- in case of an EIA, sub-specialists such as biologists, hydrologists, botanists, etc will be brought into the process depending on the subproject sensitive field;
- the Team Leader (International Environmental Specialist) will have 10-15 years of experience in environmental assessment, environmental management and monitoring, construction supervision of projects including road construction, team management skills, experience working in teams of multi-discipline experts and leading a national team of consultants, understanding of administrative, procedural, and technical requirements of environmental assessment;
- Domestic Specialists will be graduates in environmental science, environmental engineering, geological science, engineering hydrology, biology or related discipline with significant experience in environmental management and monitoring of projects, environmental assessment and/or design and implementation of environmental mitigation measures.

A N N E X U R E - 4

O U T L I N E O F E N V I R O N M E N T A L M O N I T O R I N G R E P O R T

Outline of environmental monitoring report

{Environmental and/or Social} Monitoring Report

{Annual/Semestral/Quarterly} Report
{Month Year}

{Short Country Name}: {Project Title-Subproject}

Prepared by {complete and accurate name of implementing agency or external monitoring agency} for the {complete name of the borrower} and the Asian Development Bank.

CURRENCY EQUIVALENTS
(as of {Day Month Year})
{The date of the currency equivalents must be within 2 months from the date on the cover.}

Currency unit	–	{currency name in lowercase (Symbol)}
{Symbol}1.00	=	${ }
$1.00	=	{Symbol_____}

ABBREVIATIONS

{AAA}	–	{spell out (capitalize only proper names)}
{BBB}	–	{spell out}
{CCC}	–	{spell out}

{WEIGHTS AND MEASURES}

{symbol 1 (full name 1)}	–	{Definition 1}
{symbol 2 (full name 2)}	–	{Definition 2}
{symbol 3 (full name 3)}	–	{Definition 3}

{GLOSSARY}

{Term 1}	–	{Definition 1}
{Term 2}	–	{Definition 2}
{Term 3}	–	{Definition 3}

NOTE{S}

(i) The fiscal year (FY) of the Government of {name of borrower} {and its agencies} ends on {day month}. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2011 ends on {day month} 2011. {Note: If FYs are not referred to within the text, delete the entire note and change NOTES to NOTE.}

(ii) In this report, "$" refers to US dollars. {Note: If a second $ currency is referred to in the text, e.g., NZ$ or S$, add: unless otherwise stated. In the text, use “$” for US dollars and the appropriate modifier, e.g., NZ$ or S$, for other currencies that use the “$” symbol.}

This {environmental and/or social} monitoring report 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.

{Read and delete:

(i) **Guidelines:** Following requirements of the ADB Safeguard Policy Statement (2009) and the *Operations Manual* section on safeguard policy (OM F1), borrowers/clients are required to establish and maintain procedures to monitor the status of implementation of safeguard plans and ensure progress is made toward the desired outcomes. Borrowers/clients are required to submit the following monitoring reports for ADB review:

Project Category	Frequency of Reports
Environment category A	• Semi-annual monitoring reports during project construction • Annual monitoring reports during project operation
Environment category B	• Periodic monitoring reports as deemed appropriate
Involuntary resettlement category A and B	• Semiannual monitoring reports
Indigenous peoples category A and B	• Semiannual monitoring reports
Highly complex and sensitive deemed by ADB	• Quarterly monitoring reports

The level of detail and comprehensiveness of a monitoring report is commensurate with the complexity and significance of social and environmental impacts. A safeguard monitoring report may include the following elements:

(a) Background/context of the monitoring report (adequate information on the project, including physical progress of project activities, scope of monitoring report, reporting period, and the monitoring requirements including frequency of submission as agreed upon);
(b) Changes in project scope and adjusted safeguard measures, if applicable;
(c) Qualitative and quantitative monitoring data;
(d) Monitoring parameters/indicators and methods based on the monitoring plan/program previously agreed upon with ADB;
(e) Monitoring results compared against previously established benchmarks and compliance status (e.g., national environmental emission and ambient standards and/or standards set out in the WB's EHS guidelines; timeliness and adequacy of environmental mitigation measures; IR compensation rates and timeliness of payments, adequacy and timeliness of IR rehabilitation measures including serviced housing sites, house reconstruction, livelihood support measures, and training; budget for implementing EMP, RP, or IPP, timeliness and adequacy of capacity building, etc.);
(f) Monitoring results compared against the objectives of safeguards or desired outcomes documented (e.g. IR impacts avoided or minimized; livelihood restored or enhanced; IP's identity, human right, livelihood systems and cultural uniqueness fully respected; IP not suffer adverse impacts, environmental impacts avoided or minimized, etc.);
(g) If noncompliance or any major gaps identified, include a corrective action plan;
(h) Records on disclosure of monitoring information to affected communities;
(i) Identification of key issues, or complaints from affected people, or recommendations for improvement;

(j) Monitoring adjustment measures recommended based on monitoring experience/trends and stakeholders response;
(k) Information about actual institutional arrangement for implementing the monitoring program/plan provided or adjusted, as may be required;
(l) Proposed items of focus for the next report and due date.

(ii) **Page limit:** Not applicable.