Initial Environmental Examination

Project Number: 40031
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India: Rajasthan Urban Sector Development Investment Program—Baran Heritage Sites

Prepared by Local Self Government Department

For the Government of Rajasthan
Rajasthan Urban Infrastructure Development Project

ABBREVIATIONS

ADB	—	Asian Development Bank
BOQ	—	bill of quantity
CBO	—	community-based organization
CFE	—	Consent for Establishment
CFO	—	Consent for Operation
CGWB	—	Central Ground Water Board
CLC	—	City Level Committees
CLIP	—	City Level Investment Plan
DSC	—	Design and Supervision Consultants
EAC	—	Expert Appraisal Committee
EARF	—	Environmental Assessment Resettlement Framework
EIA	—	Environmental Impact Assessment
EMP	—	Environmental Management Plan
EMS	—	Environmental Monitoring Specialist
EPA	—	Environmental Protection Agency
GLR	—	ground level reservoir
GRC	—	Grievance Redress Committee
H and S	—	health and safety
IEE	—	Initial Environmental Examination
IPIU	—	Investment Program Implementation Unit
IPMC	—	Investment Program Management Consultants
IPMU	—	Investment Program Project Management Unit
ITI	—	industrial training institutes
JNNURM	—	Jawaharlal Nehru National Urban Renewal Mission
LSGD	—	Local Self Government Department
MFF	—	multitranche financing facility
MLD	—	million liters per day
MOEF	—	National Ministry of Environment and Forests
NAAQS	—	National Ambient Air Quality Standards
NGO	—	nongovernmental organization
NRRP	—	National Resettlement and Rehabilitation Policy
NRW	—	non-revenue water
O and M	—	operation and maintenance
OHSA	—	Occupational Health and Safety Administration
OMC	—	Operations and Maintenance Contractors
PHED	—	Public Health Engineering Department
PIU	—	Project Implementation Unit
PMU	—	Project Management Unit
ROW	—	right of way
RSPCB	—	Rajasthan State Pollution Control Board
RUIDP	—	Rajasthan Urban Infrastructure Development Project
RUSDIP	—	Rajasthan Urban Sector Development Investment Programme
SEIAA	—	State Environment Impact Assessment Authority

SPS	—	Safeguard Policy Statement
TOR	—	terms of reference
ULB	—	urban local body

WEIGHTS AND MEASURES

lakh	–	100 thousand = 100,000
crore	–	100 lakhs = 10,000,000
$\mu g/m^3$	–	micrograms per cubic meter
km	–	kilometer
lpd	–	liters per day
m	–	meter
mg/l	–	milligrams per liter
mm	–	millimeter
ppm	–	parts per million

NOTE{S}

(i) In this report, "$" refers to US dollars.
(ii) “INR” and “Rs” refer to Indian rupees

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EXECUTIVE SUMMARY

1. Rajasthan Urban Sector Development Investment Program (RUSDIP) is intended to optimize social and economic development in 15 selected towns in the State, particularly district headquarters and towns with significant tourism potential. RUSDIP Phase II is being implemented over a seven year period beginning in 2008, and being funded by a Multitranche Financing Facility (MFF) loan from the Asian Development Bank (ADB). The Executing Agency is the Local Self-Government Department (LSGD) of the Government of Rajasthan; and the Implementing Agency is the Project Management Unit (PMU) of the Rajasthan Urban Infrastructure Development Project (RUIDP). ADB requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for Environmental Assessment are described in ADB's SPS. This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, loans involving financial intermediaries, and private sector loans.

2. This Initial Environmental Examination (IEE) has been prepared for the Baran Heritage Sites Subproject as part of RUIDP Phase II – Tranche 3. The main aspect for the scope of work at these sites is the area development and restoration of Dolmela Talab and restoration of town wall gates (Shahbad Gate) in Baran Town. These are not declared protected monuments/areas by Archeological Survey of India (ASI)[1] thus under the jurisdiction of Baran Municipal Council (BMC).

3. The subproject covers (i) Dolmela Talab; and (ii) Shahbad Gate in Baran town. The subproject components in Dolmela Talab includes (i) desilting of the lake towards lake wall; (ii) re-construction of the damaged lake wall; (iii) construction of walkways along the lake; (iv) restoration of existing *ghats* (series of steps leading down to the lake); (v) construction of parking areas; (vi) construction of planters along the pathways, (vii) provision of street furniture like benches, dustbins, lights, signages, and resting shelters. The subproject components in Shahbad Gate include (i) restoration of the historical gate structure; (ii) removal of vegetative growth from the gate structure and injecting with lime slurry barrier to stop further growth; (iii) reconstruction of broken *kangoora* masonry; (iv) replastering and repainting of the gate structure; and (v) covering of drain along the road near gate structure with stone patties.

4. The subproject is needed to (i) restrore and preserve the historical structures of Dolmela Talab and Shahabad Gate; (ii) provide modern facilities to increasing number of tourists visiting the heritage sites; and (iii) preserve and maintain orderliness and cleanliness in the immediate vicinities of important monuments inside the heritage sites.

5. Detailed design began in the year 2009 and completed middle of 2010. Construction of all elements will begin in year 2011, and work will be completed by 2012. The design will be presented to the local government for review and approval as both the structures and their premises do not come under ASI or Rajasthan Department of Archaeology and Museums.

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[1] Archaeological Survey of India's List of Ancient Monuments and Archaeological Sites and Remains of Rajasthan can be accessed at http://asi.nic.in/asi_monu_alphalist_rajasthan.asp.

6. The subproject site is not located in areas prone to water-logging, salinasation, and flash flood. There are no protected areas, wetlands, mangroves, or estuarines inside the Dolmela Talab and Shahabad Gate. Trees, vegetation (mostly shrubs and grasses), and animals are those commonly found in urban areas.

7. Potential negative impacts were identified in relation to construction and operation of the improved infrastructure. No impacts were identified as being due to the subproject design or location. An Environmental Management Plan (EMP) is proposed as part of this IEE which includes (i) mitigation measures for significant environmental impacts during implementation, (ii) environmental monitoring program, and the responsible entities for mitigation, monitoring, and reporting; (iii) public consultation and information disclosure; and grievance redress mechanism. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. A number of impacts and their significance have already been reduced by amending the designs.

8. During the construction phase, impacts mainly arise from the need to excavate small areas which can result to disturbance to visitors, tourists, residents, and important buildings. These are common impacts of construction in built-up areas, and there are well developed methods for their mitigation.

9. One field in which impacts are much of interest in the subproject is historical and religious, and series of specific measures have been developed to avoid damaging important remains during construction.

10. There were limited opportunities to provide environmental enhancements, but certain measures were included. For example it is proposed that the project will employ in the workforce people who live in the vicinity of construction sites to provide them with a short-term economic gain; and ensure that people employed in the longer term to maintain and operate the new facilities are residents of nearby communities.

11. Mitigation will be assured by a program of environmental monitoring to be conducted during construction and operation stages. The environmental monitoring program will ensure that all measures are implemented, and will determine whether the environment is protected as intended. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries. The Investment Program Implementation Unit (IPIU) and Design and Supervision Consultants (DSC) will work closely with LSGD (as represented by the local government) in implementing the program. Any requirements for remedial action will be reported to the Investment Program Management Unit (IPMU).

12. The main impacts of the operating improved heritage sites facilities will be beneficial as visitors of Baran heritage sites will be provided with a modern-day amenity, which will lead economic gains of Baran. Once the system is operating, most facilities will operate with routine maintenance, which should not affect the environment

13. The stakeholders were involved in developing the IEE through face-to-face discussions on site and a large public meeting held in the town, after which views expressed were incorporated into the IEE and the planning and development of the project. The IEE will be made available at public locations in the town and will be disclosed to a wider audience via the ADB website. The consultation process will be continued and expanded during project

implementation, when a nationally-recognised NGO will be appointed to handle this key element to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation.

14. The subproject is unlikely to cause significant adverse impacts. The potential adverse impacts that are associated with design, construction, and operation can be mitigated to standard levels without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures. Based on the findings of the IEE, the classification of the Project as Category “B” is confirmed, and no further special study or detailed EIA needs to be undertaken to comply with ADB SPS (2009) or GoI EIA Notification (2006).

I. INTRODUCTION

A. Purpose of the Report

1. Rajasthan Urban Sector Development Investment Program (RUSDIP) is intended to optimize social and economic development in fifteen selected towns in the State, particularly district headquarters and towns with significant tourism potential. This will be achieved through investments in urban infrastructure (water supply; sewerage and sanitation; solid waste management; urban drainage; urban transport and roads), urban community upgrading (community infrastructure; livelihood promotion) and civic infrastructure (art, culture, heritage and tourism; medical services and health; fire services; and other services). RUSDIP will also provide policy reforms to strengthen urban governance, management, and support for urban infrastructure and services. The assistance will be based on the State-level framework for urban reforms, and institutional and governance reforms recommended by the Government of India through the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) and Urban Infrastructure Development Scheme for Small and Medium Towns (UIDSSMT).

2. RUIDP Phase II is being implemented over a seven year period beginning in 2008, and being funded by a loan via the Multi-tranche Financing Facility (MFF) of Asian Development Bank (ADB). The Executing Agency is the Local Self-Government Department (LSGD) of the Government of Rajasthan; and the Implementing Agency is the Project Management Unit (PMU) of the Rajasthan Urban Infrastructure Development Project (RUIDP).

3. This Initial Environmental Examination (IEE) has been prepared for the Baran Heritage Sites Subproject as part of RUIDP Phase II Tranche 3. The subproject covers (i) Dolmela Talab (water reservoir); and (ii) Shahbad Gate in Baran town. The subproject components in Dolmela Talab includes (i) desilting of the lake towards lake wall; (ii) re-construction of the damaged lake wall; (iii) construction of walkways along the lake; (iv) restoration of existing ghats (series of steps leading down to the lake); (v) construction of parking areas; (vi) construction of planters along the pathways, (vii) provision of street furniture like benches, dustbins, lights, signages, and resting shelters. The subproject components in Shahbad Gate include (i) restoration of the historical gate structure; (ii) removal of vegetative growth from the gate structure and injecting with lime slurry barrier to stop further growth; (iii) reconstruction of broken kangoora masonry; (iv) replastering and repainting of the gate structure; and (v) covering of drain along the road near gate structure with stone patties.

4. This IEE report covers the general environmental profile of Baran and includes an overview of the potential environmental impacts and their magnitude on physical, ecological, economic, and social and cultural resources within the subproject's influence area during design, construction, and operation stages. An Environmental Management Plan (EMP) is also proposed as part of this report which includes mitigation measures for significant environmental impacts during implementation of the Project, environmental monitoring program, and the responsible entities for mitigation and monitoring.

B. Extent of the IEE Study

5. This IEE report was prepared on the basis of detailed screening and analysis of all environmental parameters, field investigations and stakeholder consultations to meet the requirements for environmental assessment process and documentation as per ADB's

Safeguard Policy Statement (SPS, 2009) and Government of India Environmental Impact Assessment (EIA) Notification of 2006.

1. ADB Policy

6. ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for Environmental Assessment are described in ADB SPS 2009. This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, loans involving financial intermediaries, and private sector loans.

7. **Screening and Categorization.** The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project, the sensitivity, scale, nature and magnitude of its potential impacts, and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impact are assigned to one of the following four categories:

(i) **Category A.** Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.
(ii) **Category B**. Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
(iii) **Category C**. Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
(iv) **Category FI**. Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all Projects will result in insignificant impacts.

8. **Environmental Management Plan.** An EMP which addresses the potential impacts and risks identified by the environmental assessment shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks.

9. **Public Disclosure.** ADB will post the following safeguard documents on its website so affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation:

(i) For environmental category A projects, draft EIA report at least 120 days before Board consideration;
(ii) Final or updated EIA and/or IEE upon receipt; and
(iii) Environmental Monitoring Reports submitted by Investment Program Implementation Unit (IPIU) during project implementation upon receipt.

2. National Law

10. The Government of India EIA Notification of 2006 (replacing the EIA Notification of 1994), sets out the requirement for environmental assessment in India. This states that Environmental Clearance is required for specified activities/projects, and this must be obtained before any construction work or land preparation (except land acquisition) may commence. Projects are categorised as A or B depending on the scale of the project and the nature of its impacts.

11. Categories A projects require Environmental Clearance from the National Ministry of Environment and Forests (MOEF). The proponent is required to provide preliminary details of the project in the form of a Notification, after which an Expert Appraisal Committee (EAC) of the MOEF prepares comprehensive Terms of Reference (TOR) for the EIA study, which are finalized within 60 days. On completion of the study and review of the report by the EAC, MOEF considers the recommendation of the EAC and provides the Environmental Clearance if appropriate.

12. Category B projects require environmental clearance from the State Environment Impact Assessment Authority (SEIAA). The State level EAC categorises the project as either B1 (requiring EIA study) or B2 (no EIA study), and prepares TOR for B1 projects within 60 days. On completion of the study and review of the report by the EAC, the SEIAA issues the Environmental Clearance based on the EAC recommendation. The Notification also provides that any project or activity classified as category B will be treated as category A if it is located in whole or in part within 10 km from the boundary of protected areas, notified areas or inter-state or international boundaries.

13. The only type of infrastructure provided by the RUSDIP that is specified in the EIA Notification is solid waste management thus EC is not required for this subproject.

3. Others

14. The subproject site is not located in any protected monument[2] of Archaeological Survey of India (ASI). Therefore, The Ancient Monuments and Archaeological Sites and Remains (AMASR) Act[3], 1958, which requires approval from ASI for any construction and any other operations within the protected area, is not applicable to this subproject.

II. DESCRIPTION OF THE PROJECT

A. Type, Category and Need

15. **Type**. This is a renovation and simple construction subproject intended to improve the current situation in Baran in terms of improved facilities and amenities. This is one of a series of subprojects designed by the RUSDIP that are intended to raise the standards of the municipal infrastructure and services of Baran town and the other urban centres to those expected of modern Asian towns.

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[2] Included in Archaeological Survey of India's List of Ancient Monuments and Archaeological Sites and Remains of National Importance

[3] This Act provides for the preservation of ancient and historical monuments and archaeological sites and remains of national importance, for the regulation of archaeological excavations and for the protection of sculptures, carvings and other like objects.

16. **Category**. Environmental examination indicates the proposed subproject falls within ADB's environmental Category B projects. The Project components will only have small-scale, localized impacts on the environment, and can be mitigated. Under ADB procedures such projects require an IEE to identify and mitigate the impacts, and to determine whether further study or a more detailed EIA may be required.

17. **Need**. The subproject is needed to (i) support infrastructure development to enhance the Baran Dolmela Talab and Shahabad Gate complex; (ii) provide modern facilities to increasing number of tourists visiting the Dolmela Talab and Shahabad Gate; and (iii) preserve and maintain orderliness and cleanliness in the immediate vicinities of important structures inside the heritage sites.

B. Location and Implementation Schedule

18. The subproject site is located in Baran town which includes talab (water reservoir), gate, temples, ghats, pathways and some other structures. Works under this subproject will (i) be limited on vacant lots and spaces allocated for general public; (ii) not directly on nor encroach any of the monuments inside the Dolmela Talab and Shahabad Gate; and (iii) be closely supervised and monitored by RUIDP and LSGD.

19. Detailed design began in the year 2009 and completed middle of 2010. Construction of all elements will begin in end of 2011, and work will be completed in 2012.

C. Description of the Subproject

1. Existing Condition

20. Urban Local Bodies have kept Dolmela Talab in a presentable condition but the structure of the Shahabad Gate is in the stage of deterioration and encroachment. The Dolmela Talab is very popular historical and religious site and attracts a large number of visitors every day and during annual famous festival of Dolmela. Increase in number of domestic as well as visitors of nearby cities and State of Madhya Pradesh is expected in the coming years. The current challenges are: (i) lack of designated parking spaces; (ii) insufficient street furniture such as benches, lights, and signages; (iii) proper storm water disposal; (iv) poor condition of Shahabad Gate; (v) poor condition of Dolmela Talab; and (vi) deteriorating condition of the *ghats* and other structures in the premises of Dolmela Talab.

2. Subproject Components

21. The subproject will involve:

<u>Dholmela Talab</u>

a) Desilting up to 3 m depth of the lake towards the lake wall
b) Re-construction of damaged lake wall
c) Re-construction of broken/missing lake wall
d) Construction of walkways along the lake
e) Improvement of promenade by laying stone paving.
f) Restoration of existing *ghats*
g) Re-construction of *ghat* steps

h) Repair of damaged walls.
i) Reconstruction of new wall towards mound in alignment of existing wall
j) Repair/Construction of platforms.
k) Construction of parking areas.
l) Construction of planters along the pathways
m) Provision of street furniture like benches, dustbins, lights, signages & resting shelter etc.

Shahbad Gate

a) Restoration of the historical gate structure
b) Removal of vegetative growth from the gate structure & injecting with lime slurry barrier to stop further growth
c) Reconstruction of broken kangoora masonry
d) Re-plastering & repainting of gate structure
e) Covering of drain along the road near gate structure with stone patties

22. **Table 1** summarizes the subproject components for each location covered by the subproject. The descriptions shown in the table are based on the present proposals, which are expected to be substantially correct, although certain details may change as development of the subproject progresses.

Table 1: Present Condition of the Subproject and Proposed Components

	Location	Description	Existing Condition	Proposed Improvement
1	Dolmela Talab	- Location of the Dolmela Festival. - Dolmela is celebrated at the Dol Talab (Pond) in Baran City. Starting from the holy occasion of Jaljhulni Akadshi, the fair lasts 15 days. It is considered to be one of the major fairs in Rajasthan. The main attraction of the mela is a large Shobha Yatra (procession) which feature about 54 Dev Vimans (holy statue carriages) also known as Dol, of all the major temples of the town.	The talab is having silt deposition and often used for garbage disposal by locals, stray animals in the talab, deteriorating or damaged structures, no proper parking facilities, no proper street furniture	De-silting of talab, repairing and restoration of existing structures like path way, steps, ghats etc, providing proper parking facilities and street furniture
2	Shahabad Gate	- The historic structure is the entry/exit point to Shahabad Fort. - It was constructed by Chauhan Vanshi Dhandhel Rajput	The gate is in deteriorating stage, unwanted vegetative growth near the gate, open drains	Restoration of the gate with traditional techniques and fashion, removal of unwanted vegetative growth and covering the open drain

	Location	Description	Existing Condition	Proposed Improvement
		Mukutmani Dev in 1521. - The fort houses a Topkhana (artillery) and the Burudkhana Temple.		

III. DESCRIPTION OF THE ENVIRONMENT

A. Physical Resources

1. Administrative Boundaries

23. The town is situated in the south-eastern part of "Hadoti Plateau" at an altitude of about 260 meters above mean sea level. The town region extends as far as Mangrol in the north, Jhalawar and Atru in the south and Kishanganj in the east and Anta in the west.

2. Topography, Drainage, and Natural Hazards

24. **Topography**. The overall topography of Baran is plain. The type of soil is of Alluvial and black cotton. Hard rock is available at a depth varying from 3 to 10 feet below grade. The entire area of town is flat sloping towards Banganga River.

25. **Drainage**. The town is on the bank of Banganga River, which flows to the North of the town and joins the river Parvan, a tributary of the river Chambal. The land slopes gently northward from the high table land of Malwa in MP. It is well watered, drained by rivers flowing in North and North-Eastern directions. There are hills in the south, north and eastern portion of the district and it is gently fertile. There are hills in the east Shahabad Tehsil, having the highest point, named as Mamooni, which is 546 m above mean sea level. These hills are the part of Aravali Ranges.

26. **Natural Hazards.** Baran lies in low damage risk zone II. The area is less prone to earthquakes as it is located on comparatively stable geological plains based on evaluation of the available earthquake zone information.

3. Geology, Geomorphology, Mineral Resources, and Soils

27. **Geology.** Major part of Baran district is occupied by Shale-Sandstone –limestone sequences belonging to the Vidhyan SuperGroup and the Deccan. The oldest rock ty**p**e belonging to the Vindhyan Super Group .These are Classified in to the Rewa and Bhander Groups. This is conformably overlain by the Bhander Group comprising Ganurgarh Shale ,Bundi Hill. Of these the Bundi Hill Sandstone and the Sirbu Shale Formations in ascending order of succession. Younger alluvium is found along the present day flood plains of the rivers, supports extensive cultivation.

28. **Geomorphology.** The district is geomorphologically classified into structural plain on upper proterozoic rocks, structural plain on Deccan Trap, alluvial plains and ravine lands

29. **Mineral Resources.** Mineral Resources: Baran district is endowed with bauxite, clay and building stone. Bauxite occurs near Majola. In Mamoni area reserves of 0.5 millions tonnes of bauxite averaging 49.54 % AO, 5 % SiO, 31.1 % FeO and 6.99 % TiO are found. The length and width of deposit are 1400 m and 450 m, respectively .The thickness varies from 3 to 15 m. The Vindhyan sandstones form good building stone which are sold under the trade name “Kota stone”

30. **Soils.** Soil characteristics: Soil of the region falls within low rainfall zone of 650- 1000 mm. The soils are black of alluvial origin, clay loam and groundwater salinity is reported. The nutrient status of the Baran soil is graded as medium to high level.

4. Climate

31. Like most of Rajasthan the climate of Baran and Jhalrapatan is mainly dry, with significant rainfall only during the monsoon season. Winter extends from November to March, and the coolest period occurs in January when daytime temperatures average around 25 °C and often fall below 10 °C at night. Temperatures begin to rise in March and peak in May-June, when daytime values sometimes reach 48 °C. The south-west monsoon arrives in June, causing a sudden drop in temperature and increase in humidity. The long-term average rainfall is 844 mm, of which over 90% falls in the monsoon period. The monsoon ends in mid-September and air temperatures rise briefly, only to fall again a few weeks later with the onset of winter. Winds are generally light and northerly or north-easterly in winter and moderate to strong from the west and south-west in the monsoon. The mean daily maximum temperature of Baran is 42.6 degrees Celsius. The mean daily minimum temperature is 29.7 degrees celsius. The area experiences a humid climate and the annual rain fall is 882 mm

5. Air Quality

32. There are no data on ambient air quality of Baran Town, which is not subject to monitoring by the RPCB as there are no major industries. The nearest station is located at Kota (73 km from Baran). Traffic is the only significant pollutant in Baran, so levels of oxides of sulphur and nitrogen are likely to be well within the National Ambient Air Quality Standards (NAAQS).

6. Surface Water

33. Baran District receives the most rainfall in Rajasthan and is relatively well provided with surface water as a result. All of the rivers and streams are part of the Chambal system, which is the only perennial river in the state. All of the rivers and streams are full and swiftly flowing in the monsoon, but most are dry throughout the rest of the year. There is no water quality monitoring station at Baran and Chhabra. It is expected that during monsoon season the water quality will be deteriorated by large volume suspended solid.

7. Groundwater

34. There are number of National Hydrographic monitoring stations of Central Ground Water Board in and around Baran. In most of the cases ground water table ranged between 2 - 10 m bgl.

B. Biological Resources

35. There are no protected areas, wetlands, mangroves, or estuarines in or within the subproject site. There is a Shergarh wildlife Sanctuary which is natural habitat of deers is about 50 km away from the town. The flora and fauna commonly found in the district are-

36. **Flora.** This region or province or division in botanical terms, supports good teak forests which, however, been under heavy biotic pressure. Another dominant species is mahuwa whereas other common constituent species are sadad, baheda , dhonkra , dhav.

37. **Fauna.** In Baran district, the wild animals found are striped hyaena (Hyaena), jackal (*Canis aureus*), baghera (*Panther pardus*), monkey (*Macaca mulatta*), common mongoose (*Herpestes edwardsii*), Indianfox (*Vulpes bengalensis*), blue bull(B*oselaphus tragocamelus*) etc

C. Economic Development

38. Baran, as a district head quarter, has a special administrative status and is a resourced rich region. It continues to be the main regional centre for trade and commerce and various socio-economic activities, since major portion of near by Tehsils are irrigated by Chambal Canal System which sourced at Kota and reached to Madhya Pradesh. The main economy of the town regulates by Agriculture and related activities.

1. Land use

39. According to Baran Master Plant 2001 Baran Local Planning Area covers 12,500 acres of land. According to the Master Plan the main land use is residential (44.37%) and there are also relatively large areas of commercial (7.51%) industry (6.48%), public and semi public land (11.95%), transportation (11.60%) Government land (5.12%) and recreational land (12.97%)

. 2. Commerce, Industry and Agriculture

40. **Commerce.** Baran is the district headquarters for Baran District and performs all administrative functions. Traditionally, Baran is a commercial town and the main occupation of the people is agriculture and commercial. The development and expansion of the town took place outside the old town when the Kota-Bina Railway line established in 1906. With the establishment of railway line, gradually different institutions and establishment inflow to the town. All these activities led to residential development to a considerable extend followed by commercial and agricultural. After the completion of 1st phase of Chambal project, the town further developed at a rapid face with facilities such as grain mandi, grain go-down, hospital, college, etc., featuring along the western limits of the old town.

41. Chhabra is agriculturally a productive area and therefore most of the earlier industries were agro based, but in the last two decades due to the industrial area development by RIICO, there has been a considerable diversification in the industrial base. The town still has a very good agricultural area in its hinter land. Grain Mandi of ‘B’ category and warehouse are situated

hare. The occupation structure is also shown that majority (77.20%) of the working force is engaged in tertiary sector. Trade and commerce is the principal activity in this area during past few decades. For various historical, traditional, economic reasons the existing central business area continues to function as most important centre for trade and commerce. The Irrigation Department has completed Hinglot Dam, and Lhasi Dam project is under construction. These projects are expected to further spur the growth of agriculture and industries. Recently a Thermal Power Plant has also been proposed in this region by the State Government at Motipura Chowki situated 20 km from the town. Such project also contributes to economic growth of the town and the region.

42. **Industrials Development.** District level data has been analyzed as pertinent information specific to Baran on the industrial units and worker is not available. Most of the business transaction, both wholesale and retail are still carried out in the markets of the old town and it has been graded as class A. recently the area of wholesale market has been extended to accommodate the proposed vegetable market. Presently timber and stone stock yards are found along the Nallah and mangrol road on the western periphery of the old town. There are no large scale industries in Baran except a rice mill located on the Atru road. There are few small scale industries like oil and rice mills are located in the existing developed area. There are about 386 medium and small scale industrial units in Baran. most of the industries are agro based (125), others are- textiles (16), forest based (22), paper (16), rubber and plastic based (13), chemical (10), mineral based (15), iron and steel based (66), repair and services (90) and others (15).

43. **Agriculture.** In and around the Baran and Chhabra town area there are about 70-80% of lands used for agricultural purpose. Crop production statistics indicates much more crop production in Rabi season in compared to Kharif season. Type of crops are cereals, pulses, food grains, oilseeds and others. There are two main crops in the year viz. Rabi (in winter) and Kharif (in mansoon).

3. Infrastructure

44. **Water supply.** PHED supplies water to Baran town from River Parbati a perennial river at Baran. There are two more sources one is at Heekar Dev which is 15 km away from this town and another is at Majawatan Dev which is 16 km. Water produced at source is of 6.0 MLD and 1.0 MLD at Heekar Dev and Majawatan Dev respectively. From Heekar Dev, water transmitted is about 5.0 MLD and from Majawatan Dev, water transmitted is of about 0.8 MLD from source to the town by pumping. The PHED officials informed that the present transmission and distribution losses are of 25%. Presently, eleven (11) tube-wells tap ground water of 1.00 MLD for meeting the balance requirement. Per capita water supply based on the present stage supply is approximately 60 lpcd. The water supply of Chhabra town is completely depending up of ground water sources. Ground water is being tapped by means of open well and tube wells. The present daily demand of water is about 2.52 MLD and supply is about 1.55 MLD. As reported by the PHED officials, there are 22 nos. tube-well and 38 hand pumps out of which 35 hand pumps are working. It is also reported that the yield of tube wells is about 1.06 MLD (based on pumping of 4.0 hours per day, yield of each-well @ 200 LPM).

45. **Sewerage.** At present there is no under ground sewerage system in Baran and Chhabra. Majority of house hold (72% for Baran and 85% for Chhabra) are having individual septic tank. Open drains meant for storm water carry wastewater (mainly sludge and in few

cases sewage too) from individual households. The storm water drain discharges into natural streams that ultimately join Parbati River in Baran. The untreated wastewater of Baran ultimately joins the River Parbati, 15 km away of Baran. There is no sewage treatment facility in both the towns.

46. **Sanitation.** A predominant proportion of town households depend on individual sanitation facilities (and illegal connections opening into drains). It is estimated that approximately 72 percent and 85 % of houses (assessed properties) have access to individual sanitation facilities − either septic tanks or pit latrines, within their premises for Baran and Chhabra respectively. Others use the community toilets provided by the Municipal Boards and significant population also resort to open defecation. Most of the domestic sewage for the town is either discharged at open places through surface drains or through local soak-pits.

47. **Drainage.** Presently Baran has a minimal storm water drain exists in the town. As reported by the Municipality Board, Baran covered with 90 km of drain and the overall topography slopes from north to east direction. With the exception of the old town areas, newly developed areas are reported situated at relatively low grade levels which essentially translate in to 'depression' effect, wherein the central portion of the town is at a lower level than the adjoining areas which is also from adjoining areas which also from catchments zone. A numbers of drains/rivers such as Patheda Nallah, Forest Nallah, Ramnagar Nallah, Nalka Nallah, and the Banganga River flow through Baran. The total length of Banganga River is 65- km and the catchments area within the Baran town is about 48.12 sq.km.

48. **Industrial Effluents.** Small industries exists in under RIICO, which is outside the town area and small amount of effluent disposed scattered in local nallahs. As reported by the local MC, the responsibility of effluent disposal is under RIICO's own and could not be connected to the proposed sewer network. The individual industry should treat their effluent to bring it to the required standard before final disposal.

49. **Solid Waste.** Baran City generates approximately 40-42 MT of municipal solid waste every day comprising of both the biodegradable and non biodegradable components. The entire solid waste management of Baran town is managed by the BMB headed by the Chief Sanitary Inspector supported by 123 sweepers for the collection of waste from bins and street sweeping. Presently, a systematic and scientific system of primary collection of waste is practically non-existent and is yet to be developed. Most of the citizens merely dump the wastes in nearby open drains/bins or open space available adding to the piling up of waste along road sides and clogging of drains. There are 19 nos. bins located in different areas of the town and those are used as waste storage. BMB has adopted open transport of wastes from temporary points to the dumping site and the waste is being collected from these points and loaded on to the tractor trailer manually. There are 2 tractor tailors and one mini truck under BMB for transpiration of waste. Presently, solid waste is transported and disposed without any treatment on either side of the roads and barren agriculture land i.e. near doll talab shramik colony, near Motor Market Shahabad road N.H. – 76 and behind ITI building Jhalawar road.

50. **Transportation.** Baran comprises a road network of 125.6 km, consisting of 57.6 km bituminous roads, earthen road is of 33.0 km and 35 km cement concrete roads. Only 32.6 km road network is maintained by PWD, which is 26 percent of road length. All remaining roads are maintained by the municipal boards. In the recent past, both municipal boards have invested

substantially in upgrading roads to cement concrete roads. The condition of the roads is generally poor, and many are in need of repairs and resurfacing..

D. Social and Cultural Resources

51. **Demography.** According to Census 2001 the population of Baran-Chhabra LPA is 101461 and spreads over an area of 22.88 sq. km (13 sq.km for Baran and 9.0 sq.km for Chhabra) and organized in 50 wards (30 in Baran and 20 in Chhabra). The average density in the two Municipal Boards is 4434 persons per sq. km, significantly too high. The LPA has recorded a growth rate of 36-37 percent during the last three

52. **Health and Educational Facilities.** At the district headquarter Baran has "B" grade district hospital, one maternity and child welfare centre, 3 dispensaries and 4 urban family welfare centres. There are 47 dispensaries/hospitals in the district.

53. There are good educational facilities in Baran district, which serve both townspeople and inhabitants of surrounding villages and towns in the hinterland. There are 930 primary schools, 102 secondary and higher secondary schools, 2 general degree colleges and 3 industrial training institutes (ITI).

54. **History, Culture, and Tourism.** Baran town was under Solanki Rajputs in the 14th - 15th century. It is not exactly known that when the main town of the twelve villages under Solanki's was being named as 'Baran'. In the year 1948, joint Rajasthan was formed and that time Baran was one of the districts in the joint Rajasthan. On 31st March' 1949, Rajasthan was reconstituted and that time Baran district headquarters was converted into Sub Division headquater of Kota district. It is also worth noting that 'Baran' in urdu means rain and no wonder that Baran has the second highest rainfall in the state after Banswara district.

55. Baran is a town carved out of Kota is situated further into Hadoti region of Rajasthan State. The region is less crowded and attracts a large number of domestic and international tourists. In the interiors of the town one can get chance to visit ruined temples, and an abandoned fortress. There are wooded hill and valley which provide shelter to a larger variety of wildlife. The town is rich in culture and heritage and has potential to become an excellent tourist destination with good facilities for the tourists visiting the town. The main religious and tourist places in Baran are- Sitabari (45 Kms), Kanyadeh (Bilaspur, 45 Kms), Brahmani Mataji (Sorsan, 20 Kms), Shahabad Fort (80 Kms), Shahi Jama Masjid (Shahabad, 80 Kms), Manihara Mahadeo Temple (3 Kms), Shergarh Fort and Shergarh Wild Life Sanctuary (Shergarh, 65 Kms) etc. Besides these there are many popular festivals like Dolmela festival (in the sub project Dolmela Talab), Sitabari Fair and Phuldol Folk Festival which attracts Lakhs of visitors every year, from Baran as well as adjacent cities and Madhya Pradesh.

IV. ANTICIPATED IMPACTS AND MITIGATION MEASURES

56. This section of the IEE reviews possible subproject-related impacts, in order to identify issues requiring further attention and screen out issues of no relevance. ADB SPS (2009) require that impacts and risks will be analyzed during pre-construction, construction, and operational stages in the context of the subproject’s area of influence. As defined previously, the primary impact areas are (i) the construction sites; (ii) adjacent monuments, temples, and buildings; (iii) main routes/intersections which will be traversed by construction vehicles; and (iv)

quarries and borrow pits as sources of construction materials. The secondary impact areas are: (i) entire Baran area outside of the delineated primary impact area; and (ii) entire Baran district in terms of over-all environmental and socio-economic improvement.

57. The ADB Rapid Environmental Assessment Checklist for Urban Development in http://www.adb.org/documents/guidelines/environmental_assessment/eaguidelines002.asp was used to screen the subproject for environmental impacts and to determine the scope of the IEE investigation. The completed Checklist is found in **Appendix 1**. All the proposed subproject components will interact physically with the environment.

58. In the case of this subproject (i) most of the individual elements are relatively small and involve straightforward construction and operation, so impacts will be mainly localized and not greatly significant; (ii) most of the predicted impacts are associated with the construction process, and are produced because that process is invasive, involving excavation and earth movements; and (iii) being located in the built-up area of Baran, Dolmela Talab and Shahabad Gate, will not cause direct impact on biodiversity values. The subproject will be in properties held by the local government and access to the subproject area is thru public rights-of-way and existing roads hence, land acquisition and encroachment on private property will not occur.

A. Pre- Construction

59. **Design of the proposed components.** The design of the subproject components will be presented to the local government review and approval as both the structures and their premises do not come under ASI or Department of Archaeology and Museums.

60. **Utilities**. Telephone lines, electric poles and wires, water and sewer lines within the existing right-of-way (ROW) may be damaged. To mitigate the adverse impacts due to relocation of the utilities, DSC will (i) identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase; and (ii) require construction contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.

61. **Social and Cultural Resources**. Rajasthan is an area of rich and varied cultural heritage which includes many Forts and palaces from the Rajput and Mughal periods, and large numbers of temples and other religious sites, so there is a risk that any work involving ground disturbance can uncover and damage historical and religious remains. For this subproject, excavation will not occur near archaeological monuments, so it could be that there is no risk of such impacts. But IPIU/DSC will:

(i) Consider alternatives if the site is found to be of medium or high risk;
(ii) Include LSGD, and interest groups in consultation forums as project stakeholders so that their expertise can be made available; and
(iii) Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognised and measures are taken to ensure they are protected and conserved.

62. **Site selection of construction work camps, stockpile areas, storage areas, and disposal areas.** Sites to be considered will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems. Residential areas will not be

considered to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts, shortages of amenities, and crime). Extreme care will be taken to avoid disposals near the monuments, temples, buildings, or in areas which will inconvenience the community and visitors. All locations would be included in the design specifications and on plan drawings.

63. **Site selection of sources of materials.** Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution. To mitigate the potential environmental impacts, locations of quarry site/s and borrow pit/s (for loose material other than stones) would be included in the design specifications and on plan drawings. Priority would be sites already permitted by Mining Department. If other sites are necessary, these would to be located away from population centers, drinking water intakes and streams, cultivable lands, and natural drainage systems; and in structurally stable areas even if some distance from construction activities. It will be the construction contractor's responsibility to verify the suitability of all material sources and to obtain the approval of Baran Municipal Board (BMB). If additional quarries will be required after construction is started, then the construction contractor shall use the mentioned criteria to select new quarry sites, with written approval of BMB.

B. Construction

1. Screening of No Significant Impacts

64. The construction work is expected not to cause major negative impacts, mainly because:

(i) Most of the activities will be on the built-up areas of the Dolmela Talab and Shahabad Gate thus could be constructed without causing impacts to biodiversity;
(ii) The site is located on an government-owned land which is not occupied or used for any other purpose;
(iii) Overall construction program will be relatively short and is expected to be completed in 12 months with activities to conducted by small teams working on short lengths at a time so most impacts will be localized and short in duration; and
(iv) Most of the predicted impacts associated with the construction process are produced because the process is invasive, such as involving earth-moving and excavation. However the routine nature of the impacts means that most can be easily mitigated and the impacts are clearly a result of the construction process rather than the design or location, as impacts will not occur if excavation or other ground disturbance is not involved.

65. As a result, there are several aspects of the environment which are not expected to be affected by the construction process and these can be screened out of the assessment at this stage as required by ADB procedure. These are shown in **Table 2.** These environmental factors are screened out presently but will be assessed again before starting of the construction activities.

Table 2: Fields in which construction is not expected to have significant impacts

Field	Rationale
Topography, Drainage, and Natural Hazards	Activities are not large enough to affect these features.
Geology, Geomorphology, Mineral Resources, and Soils	Activities are not large enough to affect these features. No mineral resources in the subproject sites.
Climate	Activities are not large enough to affect this feature.
Air Quality	Short-term production of dust is the only effect on atmosphere
Geohydrology and Groundwater	Activities will not be large enough to affect these features
Protected Areas	Baran Dolmela Talab and Shahabad Gate is not Archaeological protected area therefore no impact to any protected monument is anticipated
Flora and Fauna	No rare or endangered species are found near or within project area.
Land Use	No change in land use.
Socio-economic	Subproject site is located entirely on government-owned land so there is no need to acquire land from private owners.
Commerce, Industry, and Agriculture	Activities are not large enough to affect these features
Population	Activities are not large enough to affect this feature.

2. Construction method

66. Works will involve (i) common civil works like concreting of land for parking, pavement construction, boundary wall repairing and construction, and platform construction; and (ii) electric connection, slopping of land for proper drainage of water, and utility shifting (if any) (iii) provide street furniture

3. Anticipated Impacts and Mitigation Measures

67. Although construction of the subproject components involves quite simple techniques, the invasive nature of excavation, and in this case the relatively proximity to historically- and archaeologically-sensitive areas means that there will be quite a lot of disturbance where there are a variety of human activities.

68. Physical impacts will be reduced by the method of working, whereby the works will be (i) conducted by small teams working on short lengths at a time; and (ii) if trenching is to done on roads, repaired to pre-construction conditions.

69. **Sources of Materials**. Approximately 600 to 700 m^3 of materials (sand, soil, and gravel) is required for this subproject. The construction contractor will be required to:

(i) Use quarry sites and sources permitted by government;
(ii) Verify suitability of all material sources and obtain approval of IPIU;
(iii) If additional quarries will be required after construction has started, obtain written approval from IPMU; and
(iv) Submit to DSC on a monthly basis documentation of sources of materials.

70. **Air Quality.** Emissions from construction vehicles, equipment, and machinery used for excavation and construction will induce impacts on the air quality in the construction sites. Anticipated impacts include dusts and increase in concentration of vehicle-related pollutants

such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons) but temporary and during construction activities only. To mitigate the impacts, construction contractors will be required to:

(i) Consult with IPIU/DSC on the designated areas for stockpiling of clay, soils, gravel, and other construction materials;
(ii) Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather; use tarpaulins to cover sand and other loose material when transported by trucks; and
(iii) Fit all diesel and petrol operated equipment and machinery with air pollution control devices and/or noise pollution control devices and ensure they are operating correctly.

71. **Surface Water Quality.** Construction activities will be conducted on flat areas flowing to *nallahs* which are dry during the summer period. Run-off from stockpiled materials, garbage and chemical contamination from fuels and lubricants during construction works can contaminate surface water quality. These potential impacts are temporary and short-term duration only and to ensure these are mitigated, construction contractor will be required to:

(i) Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;
(ii) Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with IPIU/DSC on designated disposal areas;
(iii) Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;
(iv) Place storage areas for fuels and lubricants away from any drainage leading to water bodies;
(v) Dispose any wastes generated by construction activities in designated sites;
(vi) Dispose the collected silt immediately (no stockpiling) in designated sites;
(vii) Conduct surface water quality inspection according to the Environmental Management Plan (EMP).

72. **Noise Levels.** Construction works will be on busy areas in the Sahabad gate. The sensitive receptors are the general population and visitors in these areas. Increase in noise level may be caused by the transportation of equipment, materials, and people. Impact is negative, short-term, and reversible by mitigation measures. The construction contractor will be required to:

(i) Plan activities in consultation with IPIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance;
(ii) Require horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach;
(iii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor; and
(iv) Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s.

73. **Existing Infrastructure and Facilities.** Excavation works can damage existing infrastructure located alongside roads. It is notably important to avoid damaging existing water pipes as these are mainly manufactured from Asbestos Cement (AC), which can be carcinogenic if inhaled, so there are serious health risks for both workers and the public. It is therefore important that construction contractors will be required to:

(i) Obtain from IPIU and/or DSC the list of affected utilities and operators;
(ii) Prepare a contingency plan to include actions to be done in case of unintentional interruption of services. and
(iii) Develop and implement an AC Pipes Management Plan

74. **Landscape and Aesthetics.** The construction works will produce less than 100 m^3 of excess excavated soils, excess construction materials, and solid waste such as removed concrete, wood, trees and plants, packaging materials, empty containers, spoils, oils, lubricants, silt and other similar items. These impacts are negative but short-term and reversible by mitigation measures. The construction contractor will be required to:

(i) Prepare and implement Waste Management and silt disposal Plan;
(ii) Avoid stockpiling of excess excavated soils;
(iii) Coordinate with Baran Municipal Board (BMB) for beneficial uses of excess excavated soils or immediately dispose to designated areas;
(iv) Recover used oil and lubricants and reuse or remove from the sites;
(v) Manage solid waste and talab (pond) silt according to the following preference hierarchy: reuse, recycling and disposal to designated areas;
(vi) Proper disposal of garbage removed from pond;
(vii) Remove all wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and
(viii) Request IPIU/DSC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.

75. **Accessibility.** Hauling of construction materials and operation of equipment on-site can cause traffic problems and conflicts in ROW. Potential impact is negative but short term and reversible by mitigation measures. The construction contractor will be required to:

(i) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites;
(ii) Schedule transport and hauling activities during non-peak hours;
(iii) Locate entry and exit points in areas where there is low potential for traffic congestion;
(iv) Keep the site free from all unnecessary obstructions;
(v) Drive vehicles in a considerate manner;
(vi) Coordinate with Baran Traffic Office for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; and
(vii) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.

76. **Socio-Economic Income.** The subproject components will be located on government lands and ROWs, so there will be no need to acquire land, and thus there will be no impacts on

the asset or landowners or tenants. However construction works will impede the access of tourists to the temples, monuments and nearby shops. The potential impacts are negative and moderate but short-term and temporary. The construction contractor will be required to:

(i) Leave spaces for access between mounds of soil;
(ii) Provide walkways and metal sheets where required to maintain access across trenches for people and vehicles;
(iii) Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools;
(iv) Consult businesses and institutions regarding operating hours and factoring this in work schedules; and
(v) Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.

77. **Socio-Economic–Employment.** Manpower will be required during the 12-month construction stage. This can result to generation of contractual employment and increase in local revenue. Thus potential impact is positive and long-term. The construction contractor will be required to:

(i) Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; and
(ii) Secure construction materials from local market.

78. **Occupational Health and Safety.** Workers need to be mindful of the occupational hazards which can arise from working in construction. Potential impacts are negative and long-term but reversible by mitigation measures. The construction contractor will be required to:

(i) Develop and implement site-specific Health and Safety (H and S) Plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use Personal Protective Equipment; (c) H and S Training[4] for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents;
(ii) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;
(iii) Provide medical insurance coverage for workers;
(iv) Secure all installations from unauthorized intrusion and accident risks;
(v) Provide supplies of potable drinking water;
(vi) Provide clean eating areas where workers are not exposed to hazardous chemical or noxious substances;

[4] Some of the key areas that may be covered during training as they relate to the primary causes of accidents include (i) slips, trips and falls; (ii) personal protective equipment; (iii) ergonomics, repetitive motion, and manual handling; (iv) workplace transport; and (v) legislation and responsibilities. Training can provide the foundations of competence but it does not necessarily result in a competent worker. Therefore, it is essential to assess staff competence to ensure that the training provided is relevant and effective. Supervision and monitoring arrangements shall be in place to ensure that training has been effective and the worker is competent at their job. The level of supervision and monitoring required is a management decision that shall be based on the risks associated with the job, the level of competence required, the experience of the individual and whether the worker works as part of a team or is a lone worker.

(vii) Provide H and S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, use personal protective equipments, and preventing injuring to fellow workers;
(viii) Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;
(ix) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;
(x) Ensure moving equipment is outfitted with audible back-up alarms;
(xi) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate;
(xii) Use proper stairs, staging, platforms, barricades and Personal Protective Equipments (PPEs) such as safety belt, while working at height more that 1.5 meters.
(xiii) Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.

79. **Community Health and Safety.** Hazards posed to the public, specifically in high-pedestrian areas may include traffic accidents and vehicle collision with pedestrians. Potential impact is negative but short-term and reversible by mitigation measures. The construction contractor will be required to:

(i) Plan routes to avoid times of peak-pedestrian activities.
(ii) Liaise with IPIU/DSC in identifying high-risk areas on route cards/maps.
(iii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.
(iv) Provide road signs and flag persons to warn of dangerous conditions.

80. **Work Camps.** Operation of work camps can cause temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants. Potential impacts are negative but short-term and reversible by mitigation measures. The construction contractor will be required to:

(i) Consult with IPIU/DSC before locating project offices, sheds, and construction plants;
(ii) Minimize removal of vegetation and disallow cutting of trees;
(iii) Provide water and sanitation facilities for employees;
(iv) Prohibit employees from poaching wildlife and cutting of trees for firewood;
(v) Train employees in the storage and handling of materials which can potentially cause soil contamination;
(vi) Recover used oil and lubricants and reuse or remove from the site;
(vii) Manage solid waste and pond silt according to the following preference hierarchy: reuse, recycling and disposal to designated areas;

(viii) Remove all wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and
(ix) Request IPIU/DSC to report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.

81. **Social and Cultural Resources.** For this subproject, excavation will occur near important historical and religious sites so that there is a risk of any damage to these during excavation work. The construction contractor will be required to:

(i) Strictly take precautions in any excavation work;
(ii) Request IPIU/DSC or any authorized person with historical and religious field training to observe excavation;
(iii) Stop work immediately to allow further investigation if any damages are suspected; and
(iv) Inform IPIU/DSC if any damage is suspected, and take any action they require ensuring its removal or protection in situ.

C. Operation and Maintenance

1. Screening out areas of no significant impact

82. Infrastructure will be used with minor repair and routine maintenance; there are several environmental sectors which should be unaffected once the new system becomes operational. These are identified in **Table 3** below, with an explanation of the reasoning in each case. These factors are thus screened out of the impact assessment and will not be mentioned further.

Table 3: Fields in which Operation and Maintenance of the Completed Infrastructures are Expected Not to have Significant Impacts

Field	Rationale
Atmosphere	Activities are not large enough to affect these features.
Wildlife, forests, rare species, protected areas	There is no wildlife or rare or endangered species nearby the subproject components.
Coastal resources	Baran is not located in a coastal area

2. Anticipated Environmental Impacts and Mitigation Measures

83. **Physical Resources.** Physical impacts will be negligible and rather positive. Repair works will not be conducted during monsoon period so there will be no effect on drainage or other surface water body. Generated dust will be suppressed by water sprinkling.

84. **Ecological Resources.** There are no significant ecological resources in or around the town, so any repairs or maintenance work can be conducted without ecological impacts.

85. **Economic Development.** The provision of improved infrastructure in the Dolmela Talab and Shahabad Gate will definitely encourage tourism which will result in overall improved economic condition of the Baran town.

86. **Social and Cultural Resources.** There is a low risk of chance finds during O and M since all work will be conducted in areas that have already been disturbed when the infrastructure was installed. However, repair works could cause some temporary disruption of activities so the same precautions as employed during the construction period should be adopted. O and M contractor will need to:

(i) Complete work in these areas quickly;
(ii) Provide access for pedestrians and metal sheets for vehicles where required; and; and
(iii) Consult municipal authorities, custodians of important buildings, cultural and tourism authorities and local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals.

V. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. Project Stakeholders

87. The primary stakeholders are:

(i) Residents, shopkeepers and businesspeople who live and work alongside the project areas in which improvements will be provided and near sites where facilities will be built;
(ii) Custodians and users of socially and culturally important buildings in affected areas;
(iii) State and local authorities responsible for the protection and conservation of historical sites and artefacts.

88. The secondary stakeholders are:

(i) LSGD as the Executing Agency;
(ii) Other government institutions whose remit includes areas or issues affected by the subproject (state and local planning authorities such as Public Health Engineering Department, Local Government Department, Ministry of Environment and Forests, Roads and Highways Division);
(iii) Non-government organizations (NGOs) and community-based organizations (CBOs) working in the affected communities;
(iv) Other community representatives (prominent citizens, religious leaders, elders, women's groups);
(v) The beneficiary community in general; and
(vi) ADB, GoI, and Ministry of Finance.

B. Consultations and Disclosures Conducted

89. Some informal discussion was held with the local people during site visit. Issues discussed are:

(i) Awareness and extent of the project and development components;

(ii) Benefits of Project for the economic and social upliftment of community;
(iii) Labour availability in the Project area or requirement of outside labour involvement;
(iv) Local disturbances due to Project Construction Work;
(v) Necessity of tree felling etc. at project sites;
(vi) Water logging and drainage problem if any;
(vii) Drinking water problem;
(viii) Forest and sensitive area nearby the project site; and
(ix) Movement of wild animals nearby the project site.

90. Public consultations and group discussion meetings were conducted by DSC on 10 September 2010 at different locations in and near Dolmela Talab and Shahabad Gate. The objectives were to appraise the stakeholders about the program's environmental and social impacts and present safeguards to mitigate any potential significant impacts. Records of public consultations are attached as **Appendix 2**. The major issues raised are related to traffic interferences and possible dust and noise problems during construction phase. Other comments include construction vehicles creating some disturbances to the local people daily activities, necessity of proper safety arrangements, and widening of roads prior to construction activities. The issues and comments have been considered and incorporated in the design of the subproject and mitigation measures for the potential environmental impacts raised during the public consultations.

91. Informal discussions were held with the local people during site visits for the preparation of this IEE. Issues discussed were:

(i) Executive agency should give preference to engage internationally reputed contractor like Gammon, Hindusthan Construction Company (HCC), etc as people do not faith about the local contractors in respect of quality of works as well as timely completion of work;
(ii) Livelihood affected households should be given assistance in the mode of cash compensation;
(iii) Local people should be employed by the contractor during construction work;
(iv) Adequate safety measures should be taken during construction work;

92. Hindi versions of the Environmental Framework were provided during workshops to ensure stakeholders understood the objectives, policy, principles, and procedures. Likewise, English and Hindi versions of the Environmental Framework have been placed in Urban Local Body (ULB) offices, Investment Program Project Management Unit (IPMU) and IPIU offices, and the town library.

C. Future Consultation and Disclosure

93. LSGD extended and expanded the consultation and disclosure process significantly during implementation of RUSDIP. They have appointed an experienced NGO to handle this key aspect of the programme. The NGO (Community Awareness Participation Program, [CAPP]) continuously (i) conducts a wide range of activities in relation to all subprojects in each town; and (ii) ensures the needs and concerns of stakeholders are registered and are addressed in subproject design.

94. For this subproject, CAPP will develop, in close coordination with IPIU and DSC, a public consultation and disclosure program which is likely to include the following:

(i) Consultation during detailed design:
  (a). Focus-group discussions with affected persons and other stakeholders (including women's groups, NGOs and CBOs) to hear their views and concerns, so that these can be addressed in subproject design where necessary; and
  (b). Structured consultation meetings with the institutional stakeholders (government bodies and NGOs) to discuss and approve key aspects of the project.

(ii) Consultation during construction:
  (a). Public meetings with affected communities to discuss and plan work programmes and allow issues to be raised and addressed once construction has started; and
  (b). Smaller-scale meetings to discuss and plan construction work with individual communities to reduce disturbance and other impacts, and provide a mechanism through which stakeholders can participate in subproject monitoring and evaluation;

(iii) Project disclosure:
  (a) Public information campaigns (via newspaper, TV and radio) to explain the project to the wider town population and prepare them for disruption they may experience once the construction programme is underway;
  (b) Public disclosure meetings at key project stages to inform the public of progress and future plans, and to provide copies of summary documents in Hindi; and
  (c) Formal disclosure of completed project reports by making copies available at convenient locations in the study towns, informing the public of their availability, and providing a mechanism through which comments can be made.

95. Based on ADB requirements, the following will be posted on ADB website: (i) this IEE, upon receipt; (ii) a new or updated IEE, if prepared, reflecting significant changes in the Project during design or implementation; (iii) corrective action plan prepared during Project implementation to address unanticipated environmental impacts and to rectify non-compliance to EMP provisions; and (iv) environmental monitoring reports, upon receipt.

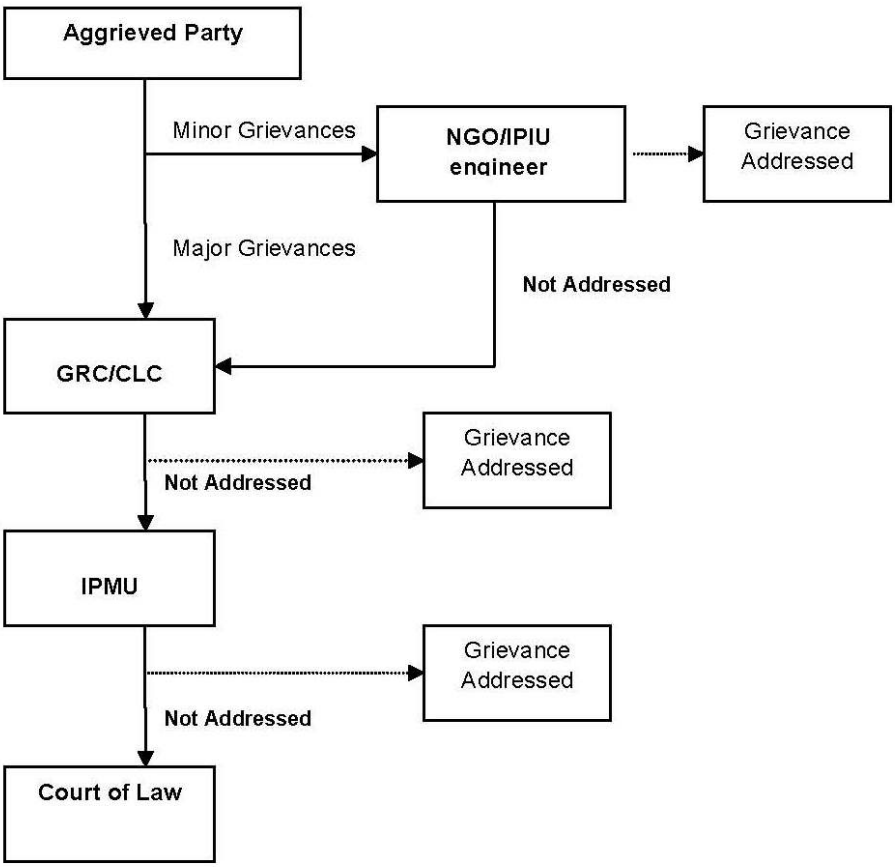
VI. GRIEVANCE REDRESS MECHANISM

96. Grievances of affected persons will first be brought to the attention of the implementing NGO or IPIU engineer. Grievances not redressed by the NGO or IPIU will be brought to the City Level Committees (CLC) set up to monitor project implementation in each town. The CLC, acting as a grievance redress committee (GRC) is chaired by the District Collector with representatives from the ULB, state government agencies, IPIU, community-based organizations (CBOs) and NGOs. As GRC, the CLC will meet every month. The GRC will determine the merit of each grievance, and resolve grievances within a month of receiving the complaint, failing which the grievance will be addressed by the inter-ministerial Empowered Committee. The Committee will be chaired by the Minister of Urban Development and Local Self Government Department (LSGD), and members will include Ministers, Directors and/or

representatives of other relevant Government Ministries and Departments. Grievance not redressed by the GRC will be referred to the IPMU for action failing which grievances will be referred by DPs/APs to the appropriate courts of law. The IPIU will keep records of all grievances received including: contact details of complainant, date that the complaint was received, nature of grievance, agreed corrective actions and the date these were effected, and final outcome. The grievance redress process is shown in **Figure 1**.

97. All costs involved in resolving the complaints will be borne by the IPMU. The GRCs will continue to function throughout the project duration.

Figure 1: Grievance Redress Mechanism



CLC = City Level Committee, GRC = Grievance Redress Committee, IPIU=Investment Program Implementation Unit, IPMU = Investment Progarm Management Unit, NGO = nongovernmental organization,

VII. ENVIRONMENTAL MANAGEMENT PLAN

A. Institutional Arrangements

98. The main agencies involved in managing and implementing the subproject are:

(i) LSGD is responsible for management, coordination, and execution of all activities funded under the loan;

(ii) IPMU is responsible for coordinating construction of subprojects across all towns, and for ensuring consistency of approach and performance;
(iii) IPMC assists IPMU in managing the program and assures technical quality of design and construction;
(iv) DSCs design the infrastructure, manage tendering of Contractors and supervise the construction process;
(v) IPIUs appoint and manage Construction Contractors to build elements of the infrastructure in a particular town.
(vi) An inter-ministerial Empowered Committee[5] (EC) assists LSGD in providing policy guidance and coordination across all towns and subprojects.; and
(vii) City Level Committees[6] (CLCs) have also been established in each town to monitor project implementation in the town and provide recommendations to the IPIU where necessary.

99. **Figure 2** shows institutional responsibility for implementation of environmental safeguard at different level.

1. Responsible for carrying out mitigation measures

100. During construction stage, implementation of mitigation measures is the construction contractor's responsibility while during operation stage, O and M contractor and LSGD will be responsible for the conduct of maintenance or repair works.

101. To ensure implementation of mitigation measures during the construction period, contract clauses (**Appendix 3**) for environmental provisions will be part of the civil works contracts. Contractors' conformity with contract procedures and specifications during construction will be carefully monitored by IPIU.

2. Responsible for carrying out monitoring measures

102. During construction, DSC's Environment Safeguards Officer and the designated representative of IPIU will monitor the construction contractor's environmental performance. LSGD local staff will also closely monitor works.

103. During the operation stage, monitoring will be the responsibility LSGD and BARAN MUNICIPAL BOARD (BMB).

3. Responsible for reporting

104. LGSD will submit to ADB quarterly reports on implementation of the EMP and will permit ADB to field annual environmental review missions which will review in detail the environmental aspects of the Project. Any major accidents having serious environmental consequences will be reported immediately.

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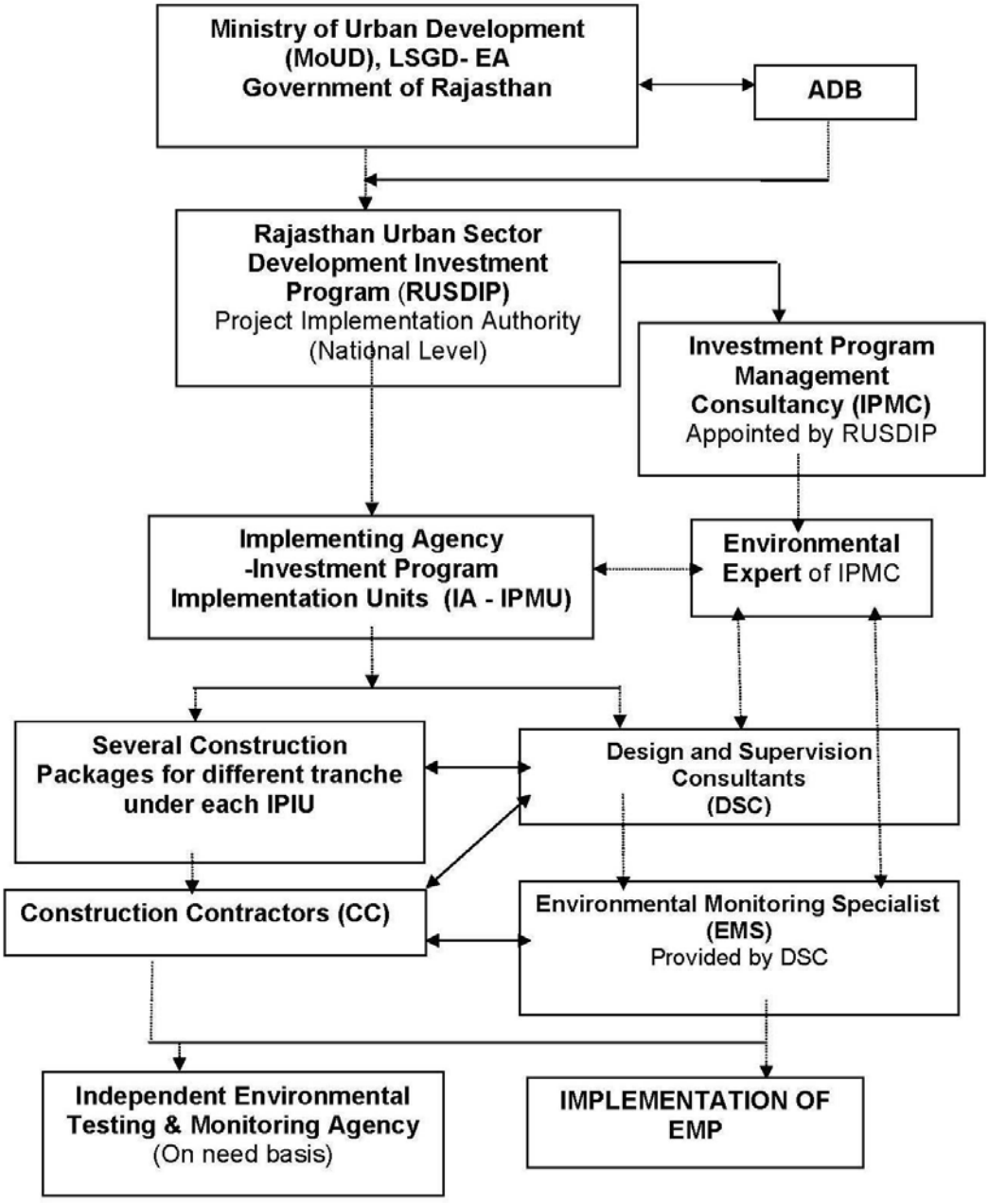
[5] The EC is chaired by the Minister of Urban Development and LSG, and members include Ministers, Directors and/or representatives of other relevant Government Ministries and Departments.

6 CLCs are chaired by District Collectors, with members including officials of the ULB, local representatives of state government agencies, the IPIU, and local NGOs and CBOs.

Figure 2: Institutional Arrangement



B. Environmental Mitigation Plan

105. **Tables 4 to 6** show the potential adverse environmental impacts, proposed mitigation measures, responsible parties, and estimated cost of implementation. This EMP will be included in the bid documents and will be further reviewed and updated during implementation.

C. Environmental Monitoring Program

106. **Tables 7 to 9** show the proposed environmental monitoring program for this sub-project. It includes all relevant environmental parameters, description of sampling stations, frequency of monitoring, applicable standards, responsible parties, and estimated cost. Monitoring activities during the detailed engineering design stage will from part of the baseline conditions of the subproject sites and will be used as the reference for acceptance of restoration works by the construction contractors.

Table 4: Anticipated Impacts and Mitigation Measures – Pre-construction Environmental Mitigation Plan

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Design Consideration	Unacceptable design for the existing heritage sites	Obtained "No Objection Certification" from local government	IPIU and DSC	"No Objection Certificate" from local government
Utilities	Telephone lines, electric poles and wires, water and sewer lines within the sub-project area may be damaged.	(i) Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during c**o**nstruction phase; and (ii) Require construction contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.	DSC	(i) list of affected utilities and operators; (ii) bid document to include requirement for a contingency plan for service interruptions
Social and Cultural Resources	Ground disturbance can uncover and damage religious and historical remains	(i) Consider alternatives if the site is found to be of medium or high risk; (ii) Include state and local cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available; and (iii) Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognised and measures are taken to ensure they are protected and conserved.	IPIU and DSC	Site surveys and consultation with line departments
Construction work camps, stockpile areas, storage areas, and disposal areas.	Disruption to traffic flow and sensitive receptors	(i) Prioritize areas within or nearest possible vacant space in the subproject sites; (ii) If it is deemed necessary to locate elsewhere, consider sites that will not promote	IPIU and DSC to determine locations prior to award of construction contracts.	List of selected sites for construction work camps, stockpile areas, storage areas, and disposal areas.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems; (iii) Do not consider residential areas; (iv) Take extreme care in selecting sites to avoid direct disposal to water body or in areas which will inconvenience the community.		
Sources of Materials	Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	(i) Prioritize sites already permitted by the Mining Department; (ii) If other sites are necessary, inform construction contractor that it is their responsibility to verify the suitability of all material sources and to obtain the approval of IPIU	IPIU and DSC to prepare list of approved quarry sites and sources of materials	(i) list of approved quarry sites and sources of materials

Table 5: Anticipated Impacts and Mitigation Measures – Construction Environmental Mitigation Plan

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Sources of Materials	Extraction of rocks and material may cause ground instability	(i) Use quarry sites and sources permitted by government; (ii) Verify suitability of all material sources and obtain approval of Investment Program Implementation Unit (IPIU); (iii) Submit to DSC on a monthly basis documentation of sources of materials.	Construction Contractor	Construction Contractor documentation
Air Quality	Emissions from construction vehicles, equipment, and machinery used for	(i) Consult with IPIU/DSC on the designated areas for stockpiling of clay, soils,	Construction Contractor	(i) Location of stockpiles; (ii) complaints from sensitive receptors; (iii) heavy

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
	excavation and construction resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrous oxides, and hydrocarbons)	gravel, and other construction materials; (ii) Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather; (iii) Use tarpaulins to cover sand and other loose material when transported by trucks; and (v) Fit all heavy equipment and machinery with air pollution control devices which are operating correctly.		equipment and machinery with air pollution control devices (iii) ambient air monitoring for respirable particulate matter (RPM) and suspended particulate matter (SPM); (iv) vehicular emissions such as sulphur dioxide (SO2), nitrous oxides (NOx), carbon monoxide (CO), and hydrocarbons
Surface water quality	Run-off from stockpiled materials, and chemical contamination from fuels and lubricants during construction works can contaminate downstream surface water quality.	(i) Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; (ii) Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with IPIU/DSC on designated disposal areas; (iii) Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; (iv) Place storage areas for fuels and lubricants away from any drainage leading to water bodies; (v) Dispose any wastes generated by construction activities in designated sites; (vi) Dispose collected silt immediately (no stockpiling) in designated areas; (vii) Conduct surface quality inspection according to the	Construction Contractor	(i) Areas for stockpiles, storage of fuels and lubricants and waste materials; (ii) number of silt traps installed along drainages leading to water bodies; (iii) records of surface water quality inspection; (iv) effectiveness of water management measures; (v) for inland water: suspended soilds, oil and grease, biological oxygen demand (BOD), and coliforms

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		Environmental Management Plan (EMP).		
Noise Levels	Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials	(i) Plan activities in consultation with IPIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Require horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach; (iii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor; and (iv) Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s.	Construction Contractor	(i) Complaints from sensitive receptors; (ii) use of silencers in noise-producing equipment and sound barriers; (iii) Equivalent day and night time noise levels
Existing Infrastructure and Facilities	Disruption of service and damage to existing infrastructure located at project area	(i) Obtain from IPIU and/or DSC the list of affected utilities and operators; (ii) Prepare a contingency plan to include actions to be done in case of unintentional interruption of services; and	Construction Contractor	(i) Existing Utilities Contingency Plan
Landscape and Aesthetics	solid wastes, silt, garbage from pond(talab) as well as excess construction materials	(i) Prepare and implement Waste Management Plan; (ii) Avoid stockpiling of excess excavated soils; (ii) Coordinate with BMB for beneficial uses of excess excavated soils & pond silt or	Construction Contractor	(i) Waste Management Plan; (ii) complaints from sensitive receptors; (iii) IPIU/DSC to report in writing that the necessary environmental restoration work has been adequately performed before

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		immediately dispose to designated areas; (iv) Recover used oil and lubricants and reuse or remove from the sites; (v) Manage solid waste, garbage from pond according to the following preference hierarchy: reuse, recycling and disposal to designated areas; (vi) Remove all wreckage, rubbish, or temporary structures (such as buildings, shelters) which are no longer required; and (vii) Request IPIU/DSC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.		acceptance of work.
Accessibility	traffic problems and conflicts in right-of-way (ROW)	(i) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; (ii) Schedule transport and hauling activities during non-peak hours; (iii) Locate entry and exit points in areas where there is low potential for traffic congestion; (iv) Keep the site free from all unnecessary obstructions; (v) Drive vehicles in a speed limit specified for the area (vi) Coordinate with Baran Traffic Office for temporary road diversions and for	Construction Contractor	(i) Traffic Management Plan; (ii) complaints from sensitive receptors; (iii) number of signages placed at subproject sites.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		provision of traffic aids if transportation activities cannot be avoided during peak hours; and (vii) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.		
Socio-Economic – Income.	impede the access of tourists to nearby shops	(i) Leave spaces for access between mounds of soil; (ii) Provide walkways for tourists and metal sheets where required to maintain access across trenches for people and vehicles; (iii) Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools; (iv) Consult businesses, tourist office and institutions regarding operating hours and factoring this in work schedules; and (v) Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	Construction Contractor	(i) complaints from sensitive receptors; (ii) number of walkways, signages, and metal sheets placed at subproject sites.
Socio-Economic - Employment	generation of contractual employment and increase in local revenue	(i) Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; and (ii) Procure construction materials from local market.	Construction Contractor	(i) employment records; (ii) records of sources of materials
Occupational Health and	occupational hazards which	(i) Develop and implement	Construction Contractor	(i) site-specific Health and

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Safety	can arise from working in infrastructures like roads and bridges	site-specific Health and Safety (H and S) Plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use Personal Protective Equipment; (c) H and S Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; (ii) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site; (iii) Provide medical insurance coverage for workers; (iv) Secure all installations from unauthorized intrusion and accident risks; (v) Provide supplies of potable drinking water; (vi) Provide clean eating areas where workers are not exposed to hazardous or noxious substances; (vii) Provide H and S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective equipments, and preventing injuring to fellow workers; (viii) Provide visitor orientation if visitors to the site can gain		Safety (H and S) Plan; (ii) Equipped first-aid stations; (iii) Medical insurance coverage for workers; (iv) Number of accidents; (v) Supplies of potable drinking water; (vi) Clean eating areas where workers are not exposed to hazardous or noxious substances; (vii) record of H and S orientation trainings (viii) personal protective equipments; (ix) % of moving equipment outfitted with audible back-up alarms; (xi) Site inspection for the use and disposal of chemicals (xiii) sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted; (ix) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas; (x) Ensure moving equipment is outfitted with audible back-up alarms; (xi) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; and (xii) Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.		
Community Health and Safety.	traffic accidents and vehicle collision with pedestrians	(i) Plan routes to avoid times of peak-pedestrian activities. (ii) Liaise with IPIU/DSC in identifying high-risk areas on route cards/maps.	Construction Contractor	(i) Traffic Management Plan; (ii) complaints from sensitive receptors

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		(iii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. (iv) Provide road signs and flag persons to warn of dangerous conditions.		
Work Camps	temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants	(i) Consult with IPIU/DSC before locating project offices, sheds, and construction plants; (ii) Minimize removal of vegetation and disallow cutting of trees; (iii) Provide water and sanitation facilities for employees; (iv) Prohibit employees from poaching wildlife and cutting of trees for firewood; (v) Train employees in the storage and handling of materials which can potentially cause soil contamination; (vi) Recover used oil and lubricants and reuse or remove from the site; (vii) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; (viii) Remove all wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and	Construction Contractor	(i) complaints from sensitive receptors; (ii) water and sanitation facilities for employees; and (iii) IPIU/DSC report in writing that the camp has been vacated and restored to pre-project conditions

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
		(ix) Request IPIU/DSC to report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.		
Social and Cultural Resources	risk of damage to historical and religious structures	((i) Request IPIU/DSC or any authorized person with historical field training to observe excavation; (iii) Stop work immediately to allow further investigation if any finds are suspected; and (iv) Inform IPIU/DSC if a find is suspected, and take any action they require ensuring its removal or protection in situ.	Construction Contractor/LSGD field staff	(i) records of excavation works

Table 6: Anticipated Impacts and Mitigation Measures – Operation and Maintenance Environmental Mitigation Plan

Field	Anticipated Impact	Mitigation Measures	Responsible for Mitigation	Monitoring of Mitigation
Economic Development and Social and Cultural Resources	temporary disruption of activities	(i) Complete work in these areas quickly; and (ii) Provide wooden bridges for pedestrians and metal sheets for vehicles to allow access across open trenches where required; and (iv) Consult municipal authorities, custodians of important buildings, cultural and tourism authorities and local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious and cultural festivals.	BMB and O and M Contractors in close coordination with temple authority/ LSGD	complaints from sensitive receptors
Solid wastes	If not removed frequently – garbage dumping within the Mela Talab and Shahabad Gate resulting nuisance and unhygienic condition	Regular removal of waste	BMB and O and M Contractors in close coordination with temple authority/ LSGD	(i) frequency of collection; (ii) complaints from sensitive receptors

Table 7: Pre-construction Environmental Monitoring Program

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
Design Consideration	not applicable	IPIU and DSC	"No Objection Certificate" from the local government	checking of records	NOC issued prior to commencement of civil works	Once prior to start of construction	IPMU
Baseline Environmental Condition – Ambient Air Quality	Subproject sites	DSC	Establish baseline values of respirable particulate matter (RPM) and (ii) suspended particulate matter (SPM)	Air sample collection and analyses by in-house laboratory or accredited 3rd party laboratory	GOI Ambient Air Quality Standards	Once prior to start of construction	IPMU
Baseline Environmental Condition - Water Quality	Subproject sites	DSC	Establish baseline values of suspended solids (TSS), (iii) pH (iv) biological oxygen demand (BOD), (v) fecal coliform	Air sample collection and analyses by in-house laboratory or accredited 3rd party laboratory	GOI Water Quality Standards	Once prior to start of construction	IPMU
Utilities	not applicable	DSC	(i) list of affected utilities and operators; (ii) bid document to include requirement for a contingency plan for service interruptions	checking of records	(i) list of affected utilities and operators prepared; (ii) requirement for a contingency plan for service interruptions included in bid documents	once	IPMU
Social and Cultural Resources	not applicable	IPIU and DSC	Chance Finds Protocol	checking of records	Chance Finds Protocol provided to construction contractors prior to commencement of activities	once	IPMU
Construction	not applicable	IPIU and DSC to	List of selected	checking of	List of selected	once	PMU

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
work camps, hot mix plants, stockpile areas, storage areas, and disposal areas.		determine locations prior to award of construction contracts.	sites for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas.	records	sites for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas provided to construction contractors prior to commencement of works.		
Sources of Materials	not applicable	IPIU and DSC to prepare list of approved quarry sites and sources of materials	(i) list of approved quarry sites and sources of materials; (ii) bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.	checking of records	(i) list of approved quarry sites and sources of materials provided to construction contractors (ii) bid document included requirement for verification of suitability of sources and permit for additional quarry sites if necessary.	once	IPMU

Table 8: Construction Environmental Monitoring Program

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
Sources of Materials	quarries and sources of materials	Construction Contractor	Construction Contractor documentation	(i) checking of records; (ii) visual inspection of sites	(i) sites are permitted; (ii) report submitted by construction	monthly submission for construction contractor	DSC

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
					contractor monthly (until such time there is excavation work)	as needed for DSC	
Air Quality	construction sites and areas designated for stockpiling of materials	Construction Contractor	(i) Location of stockpiles; (ii) complaints from sensitive receptors; (iii) heavy equipment and machinery with air pollution control devices (iii) ambient air for respirable particulate matter (RPM) and suspended particulate matter (SPM); (iv) vehicular emissions such as sulphur dioxide (SO2), nitrous oxides (NOx), carbon monoxide (CO), and hydrocarbons (HC)	(i) checking of records; (ii) visual inspection of sites	(i) stockpiles on designated areas only; (ii) complaints from sensitive receptors satisfactorily addressed; (iii) air pollution control devices working properly; (iv) GOI Ambient Quality Standards for ambient air quality; (iv) GOI Vehicular Emission Standards for SO2, NOx, CO and HC.	monthly for checking records	DSC in coordination with local government
Surface Water Quality	(i) construction sites; (ii) areas for stockpiles, storage of fuels and lubricants and waste materials; (iii) pond/lake area	Construction Contractor	(i) Areas for stockpiles, storage of fuels and lubricants and waste materials; (ii) number of silt traps installed along drainages leading to water	visual inspection; Sample collection and laboratory analyses	(i) designated areas only; (ii) silt traps installed and functioning; (iii) no noticeable increase in suspended solids and silt from construction	monthly	DSC in coordination with local government

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
			bodies; (iii) records of surface water quality inspection; (iv) effectiveness of water management measures; (v) for inland water: suspended solids, oil and grease, biological oxygen demand (BOD), and coliforms.		activities (iv) GOI Standards for Water Discharges to Inland Waters and Land for Irrigation		
Noise Levels	(i) construction sites; (ii) work camps	Construction Contractor	(i) Complaints from sensitive receptors; (ii) use of silencers in noise-producing equipment and sound barriers; (iii) Equivalent day and night time noise levels	(i) checking of records; (ii) visual inspection	(i) complaints from sensitive receptors satisfactorily addressed; and (ii) silencers in noise-producing equipment functioning as design; and (iii) sound barriers installed where necessary	monthly	DSC in coordination with local government
Existing Utilities and Infrastructure	(i) construction sites; (ii) alignment of affected utilities	Construction Contractor	(i) Existing Utilities Contingency Plan;	(i) checking of records; (ii) visual inspection	implementation according to Utilities Contingency Plan	as needed	DSC
Landscape and Aesthetics	(i) construction sites; (ii) areas for stockpiles, storage of fuels and lubricants and waste materials;	Construction Contractor	(i) Waste Management Plan; (ii) complaints from sensitive receptors; (iii) IPIU/DSC to report in writing	(i) checking of records; (ii) visual inspection	(i) no accumulation of solid wastes on-site; (ii) implementation of Waste Management	monthly	DSC in coordination with local government

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
	(iii) work camps		that the necessary environmental restoration work has been adequately performed before acceptance of work.		Plan; (iii) complaints from sensitive receptors satisfactorily addressed.		
Accessibility	(i) construction sites; (ii) traffic routes	Construction Contractor	(i) Traffic Management Plan; (ii) complaints from sensitive receptors; (iii) number of signages placed at subproject sites.	visual inspection	(i) implementation of Traffic Management Plan; (ii) complaints from sensitive receptors satisfactorily addressed; (iii) signages visible and located in designated areas	monthly	DSC in coordination with local government
Socio-Economic - Income	construction sites	Construction Contractor	(i) complaints from sensitive receptors; (ii) number of walkways, signages, and metal sheets placed at subproject sites.	visual inspection	(i) complaints from sensitive receptors satisfactorily addressed; (ii) walkways, ramps, and metal sheets provided (iii) signages visible and located in designated areas	quarterly	DSC
Socio-Economic - Income	construction sites	Construction Contractor	(i) employment records; (ii) records of sources of materials	checking of records	number of employees from Baran equal or greater than 50% of total workforce	quarterly	DSC
Occupational	construction sites	Construction	(i) site-specific	(i) checking of	(i) implementation	quarterly	DSC

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
Health and Safety		Contractor	Health and Safety (H and S) Plan; (ii) Equipped first-aid stations; (iii) Medical insurance coverage for workers; (iv) Number of accidents; (v) Supplies of potable drinking water; (vi) Clean eating areas where workers are not exposed to hazardous or noxious substances; (vii) record of H and S orientation trainings (viii) personal protective equipments; (ix) % of moving equipment outfitted with audible back-up alarms; (xi) sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and	records; (ii) visual inspection	of H and S plan; (ii) number of work-related accidents; (iii) % usage of personal protective equipment; (iv) number of first-aid stations, frequency of potable water delivery, provision of clean eating area, and number of sign boards are according to approved plan; (v) % of moving equipment outfitted with audible back-up alarms		

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
			areas for storage and disposal.				
Community Health and Safety	construction sites	Construction Contractor	(i) Traffic Management Plan; (ii) complaints from sensitive receptors	visual inspection	(i) implementation of Traffic Management Plan; (ii) complaints from sensitive receptors satisfactorily addressed	quarterly	DSC in coordination with local government
Work Camps	work camps	Construction Contractor	(i) complaints from sensitive receptors; (ii) water and sanitation facilities for employees; and (iii) IPIU/DSC report in writing that the camp has been vacated and restored to pre-project conditions	visual inspection	(i) designated areas only; (ii) complaints from sensitive receptors satisfactorily addressed	quarterly	DSC in coordination with local government
Chance Finds	construction sites	Construction Contractor	records of chance finds	checking of records	Implementation of Chance Finds Protocol	as needed	DSC in coordination with local government
Disposal and use of Chemical/ acids if any during construction	Construction sites	Construction Contractor	(i) Disposal of used chemical/ acids (ii) personal protective equipments;	(i) checking of records; (ii) visual inspection	Records of proper disposal	As needed	DSC in coordination with Municipality
Storage of chemical and acids	Storage site	Construction Contractor	(i) record of H and S orientation trainings (ii) personal	) checking of records; (ii) visual inspection	Records of proper storage	As needed	IPIU and DSC

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
			protective equipments; (iii) sign boards for hazardous substances and areas for storage and disposal.				

Table 9: Operation and Maintenance Environmental Monitoring Program

Field	Location	Responsible for Mitigation	Monitoring of Mitigation	Method of Monitoring	Indicators/ Standards	Frequency	Responsible for Monitoring
Economic Development and Social and Cultural Resources	subproject sites	BMB and O and M Contractors	complaints from sensitive receptors/tourist	checking of records	complaints from sensitive receptors satisfactorily addressed	as needed	IPMU
Sanitation	subproject sites	BMB and O and M Contractors in close coordination with local government	complaints from sensitive receptors/tourist	checking of records	complaints from sensitive receptors satisfactorily addressed	as needed	IPMU
Water Quality	subproject sites	BMB and O and M Contractors in close coordination with local government	Drinking Water Quality Standards	laboratory analyses	compliance with standards	as needed	IPMU
On-site Solid Waste Management	subproject sites	BMB and O and M Contractors in close coordination with local government	complaints from sensitive receptors/ tourist	checking of records	complaints from sensitive receptors satisfactorily addressed	as needed	IPMU

D. Environmental Management Plan Costs

107. Most of the mitigation measures require the Construction Contractors to adopt good site practice, which should be part of their normal procedures already, so there are unlikely to be major costs associated with compliance. Regardless of this, any costs of mitigation by the construction contractors or DSC are included in the budgets for the civil works and do not need to be estimated separately here. Mitigation that is the responsibility of LSGD will be provided as part of their management of the project, so this also does not need to be duplicated here.

108. The remaining actions in the EMP are the various environmental monitoring activities to be conducted by the Environmental Monitoring Specialist (EMS) in the DSC. These have been budgeted elsewhere but budget is listed below in the event additional person months are required and found necessary by DSC, and the costs are shown in **Table 10**. The figures show that the total cost of environmental management and monitoring for the subproject as a whole is INR 150,000.

Table 10: Environmental Management and Monitoring Costs (INR)

Item	Quantity	Unit Cost	Total Cost	Source of Funds
1. Implementation of EMP				
Domestic Environmental Monitoring Specialist	1 x 1 month	150,000[7]	150,000	DSC
TOTAL			**150,000**	

EMP = Environmental Management Plan.

VIII. FINDINGS AND RECOMMENDATIONS

109. The process described in this document has assessed the environmental impacts of all elements of the infrastructure proposed under the Baran Heritage Sites Subproject. Potential negative impacts were identified in relation to construction and operation of the improved infrastructure. No impacts were identified as being due to either project design or location. All mitigation measures have been developed to reduce all negative impacts to acceptable levels.

110. During the construction phase, impacts mainly arise from the need to excavate and dispose of waste soils, pond silts and from the disturbance of residents, businesses, traffic and important buildings by the construction works. These are common impacts of construction in built-up areas, and there are well developed methods for their mitigation.

111. It is proposed that the project will employ in the workforce people who live in the vicinity of construction sites to provide them with a short-term economic gain; and ensure that people employed in the longer term to maintain and operate the new facilities are residents of nearby communities.

112. Once the system is operating, most facilities will operate with routine maintenance, which should not affect the environment. The infrastructure will need to be repaired from time to time, but environmental impacts will be much less than those of the construction period as the

[7] Unit costs of domestic consultants include fee, travel, accommodation and subsistence

work will be infrequent, affecting small areas only. It will also be conducted in areas that have already been excavated.

113. Mitigation will be assured by a program of environmental monitoring to be conducted during construction and operation stages, with assistance from LSGD. The environmental monitoring program will ensure that all measures are implemented, and will determine whether the environment is protected as intended. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries. The Project Implementation Unit (PIU) and Design and Supervision Consultants (DSC) will work closely with LSGD in implementing the program. Any requirements for remedial action will be reported to the IPMU.

114. The main impacts of the subproject will be beneficial to the citizens of Baran as improved infrastructure in the Dolmela Talab and Shahabad Gate area will lead to socio-economic gains for the town.

115. The stakeholders were involved in developing the IEE through face-to-face discussions on site and a large public meeting held in the town, after which views expressed were incorporated into the IEE and the planning and development of the project. The IEE will be made available at public locations in the town and will be disclosed to a wider audience via the ADB website. The consultation process will be continued and expanded during project implementation, when a nationally-recognised NGO will be appointed to handle this key element to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation

IX. CONCLUSIONS

116. The subproject is not anticipated to cause significant adverse impacts. The potential adverse impacts that are associated with design, construction, and operation can be mitigated to standard levels without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures.

117. Based on the findings of the IEE, the classification of the Project as Category “B” is confirmed, and no further special study or detailed EIA needs to be undertaken to comply with ADB SPS (2009) or GoI EIA Notification (2006).

Appendix 1 – Rapid Environmental Assessment (REA) Checklist –

A. Baran Heritage Site (Dolmela Talab)

SCREENING QUESTIONS			Yes	No	REMARKS
A.	**Project Siting**				
Is the project area …….					
♦	Densely populated ?			√	Out side of Talab there is road, open field and shops
♦	Heavy with development activities?			√	No as such
♦	Adjacent to or within any environmentally sensitive area				
	●	Cultural heritage site	√		Proposed works are within the premises of Dolmela Talab which is a famous cultural pilgrimage site of Baran but not within ASI list of heritage site
	●	Protected Area		√	
	●	Wetland		√	
	●	Mangrove		√	
	●	Estuarine		√	
	●	Buffer zone of protected area		√	
	●	Special area for protecting biodiversity		√	
	●	Bay		√	
B.	**Potential Environmental Impacts**				
Will the Project causes ……..					
♦	Impairment of historical/cultural monuments/areas and loss/damage to these sites?			√	Works proposed are only development of facilities and repairs in existing structures near the Lake and gate
♦	interference with other utilities and blocking of access to buildings, nuisance to neighbouring areas due to noise, smell, and influx of insects, rodents, etc.?			√	No such activities are proposed

♦	dislocation of involuntary resettlement of people		√	Works proposed are only within premises of Dholmela Talab, no such issue arise
♦	noise and vibration due to blasting and other civil works?		√	No any activity shall cause such results
♦	discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?		√	No hazardous materials are expected to come in sewage
♦	social conflicts between construction workers from other areas and community workers?		√	Mostly workers shall be hired locally
♦	road blocking and temporary flooding due to land excavation during the rainy season?		√	
♦	noise and dust from construction activities?		√	No heavy excavation and construction work is proposed, mitigation measures should be followed
♦	traffic disturbances due to construction material transport and wastes?		√	No traffic inside the project area exists, out side road is having medium traffic
♦	temporary silt runoff due to construction?	√		Mitigation measures should be followed during execution of work
♦	hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?		√	No sewer system exists in project

B. Baran Heritage Site (Shahabad Gate)

SCREENING QUESTIONS			Yes	No	REMARKS
A.	**Project Siting**				
Is the project area …….					
♦	Densely populated ?		√		There are encroachments adjacent to gate
♦	Heavy with development activities?			√	
♦	Adjacent to or within any environmentally sensitive area				
	●	Cultural heritage site		√	Shahabad Gate is about 500 years old gate made by rulers of Hala dynasty. The gate is not within ASI list of heritage site

	●	Protected Area		√	
	●	Wetland		√	
	●	Mangrove		√	
	●	Estuarine		√	
	●	Buffer zone of protected area		√	
	●	Special area for protecting biodiversity		√	
	●	Bay		√	
B.	**Potential Environmental Impacts**				
Will the Project causes ……..					
♦	Impairment of historical/cultural monuments/areas and loss/damage to these sites?			√	Works proposed are only repairs in existing structures of the gate which are mostly in damaged conditions
♦	interference with other utilities and blocking of access to buildings, nuisance to neighbouring areas due to noise, smell, and influx of insects, rodents, etc.?		√		This gate is the only way for entry to dense populated Shahabad Darwaja locality, care should be taken not to block the access to existing homes during construction work
♦	dislocation of involuntary resettlement of people			√	No resettlement required
♦	noise and vibration due to blasting and other civil works?			√	No any activity shall cause such results
♦	discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?			√	No hazardous materials are expected to come in sewage during construction works
♦	social conflicts between construction workers from other areas and community workers?			√	Mostly workers should be hired locally
♦	road blocking and temporary flooding due to land excavation during the rainy season?			√	No land excavation is required in the project
♦	noise and dust from construction activities?			√	No heavy excavation and construction work is proposed, mitigation measures should be followed

♦	traffic disturbances due to construction material transport and wastes?		√	No heavy construction works are proposed which may disturb the traffic due to construction material transport
♦	temporary silt runoff due to construction?		√	No silt runoff is expected
♦	hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?		√	No sewer system exists in project

Appendix 2

Public Consultation- Environment

Sub Project 1: Baran Heritage Site (Dolmela Talab)

Issues discussed

- General Observations
- Awareness and extent of the project and development components
- Benefits of the Project for the economic and Socio-cultural development
- Labour availability in the Project area or requirement of outside labour involvement
- Local disturbances due to Project Construction Work
- Local disturbances during project operation work.
- Necessity of tree felling etc. at project site
- Water logging and drainage problem if any
- Major environmental problems expected,
- Forest and sensitive area nearby the project site
- Other problems, encountered, if any

Date & time of Consultation:- 10.09.2010, 03.00 P.M.

Location :- Dolmela Talab, Baran

Table: Issues of the Public Consultation- Design phase

S. No.	Key Issues/Demands	Perception of community	Action to be Taken
1	Awareness of the project – including coverage area	People are not much aware of the project. DSC consultant informs the people about the proposed projects	
2	In what way they may associate with the project	• They demand that local people of the area should be engaged during implementation of the same. • Some people need associated infrastructure developments like toilet, drinking water facilities, drainage etc.	Local people should be deployed during construction works, improvements of basic amenities should be done
3	Presence of any forest, wildlife or any sensitive/ unique environmental components nearby the project area	No any	

4	Presence of historical/cultural/religious sites nearby	Dolmela Talab itself is a cultural and religious site more than 200 years old. Dolmela is organised at the Dol Talab (Pond) in Baran town from *Jaljhulni Akadshi*., This fair is organised for 15 days and it is very popular among the local residents as well as the residents from all over the state of Rajasthan	Proposed project activity should be stopped during Mela period
5	Unfavourable climatic condition	May to June there is very hot season; otherwise the condition of climate is favourable for work.	
6	Occurrence of flood	No report of Flood in the project area.	
7	Drainage and sewerage problem facing	No drainage and sewerage system in the project area.	Drainage system and Sewerage system should be improved
8	Present drinking water problem – quantity and quality	People get water supply from PHED. People exploring water through hand pumps, natural reservoir and wells.	Drinking water facility should be provided for visitors
9	Present solid waste collection and disposal problem	Municipality takes care of the Solid waste collection, which is manually & disposed off in disposal site.	Dust bins will be provided as per DPR
10	Availability of labour during construction time	Sufficient labour will be available in this area.	
11	Access road to project site	Road of state highway is available.	
12	Perception of villagers on tree felling and afforestation	Tree cutting not required in this project.	
13	Dust and noise pollution and disturbances during construction work	Dust and noise problem shall arise upto some extent during execution but there is not dense residential area near the site hence only some temporary shopkeepers and tourists shall be affected	
14	Setting up worker camp site within the village/project locality	Labours will come from nearby location No need for setting up labour camp	
15	Safety of residents during construction phase and plying of vehicle for construction activities	There is not residential area within the site hence only some temporary shopkeepers and tourists shall be affected	Safety of residents and visitors should be

			taken in to consideration
16	Conflict among beneficiaries downstream users – water supply project using of river water	Not applicable for this project	
17	Requirement of enhancement of other facilities	They want the conservation of the heritage structures and some other facilities like toilet, drinking water etc.	

NAME AND POSITION OF PERSONS ONSULTED:

1. Rajiv Shukla- Shopkeeper
2. Ramji Lal- local resident
3. Ashutosh Singh- Shopkeeper, local
4. Jamnalal- Local Resident
5. Kailash Pal- Local resident
6. Kirodi Mal- Local Resident

Sub Project 2: Baran Heritage Site (Shahabad Gate)

Issues discussed-

- Awareness and extent of the project and development components
- Benefits of Project for the economic and social Upliftment of Community
- Labour availability in the Project area or requirement of outside labour involvement
- Local disturbances due to Project Construction Work
- Necessity of tree felling etc. at project sites
- Water logging and drainage problem if any
- Drinking water problem
- Forest and sensitive area nearby the project site
- Movement of wild animal if any

Date & time of Consultation:- 10.09.2010, 05.00 P.M.

Location :- Shahabad Gate, Baran

Table: Issues of the Public Consultation- Design phase

S. No.	Key Issues/Demands	Perception of community	Action to be Taken
1	Awareness of the project – including coverage area	Some people are aware of the project. DSC consultant informs the people about the proposed projects	
2	In what way they may associate with the project	People are very much pleased by proposed	

S. No.	Key Issues/Demands	Perception of community	Action to be Taken
		restoration of Shahabad Gate	
3	Presence of any forest, wildlife or any sensitive/ unique environmental components nearby the project area	There is Banganga river flowing outside the gate , which has lost its existence due to discharge of sewer and drains into it.	
4	Presence of historical/cultural/religious sites nearby	Shahabad Gate is about 500 years old historical structure, which is badly damaged due to encroachments and weathering	
5	Unfavourable climatic condition	May to June there is very hot season; otherwise the condition of climate is favourable for work.	
6	Occurrence of flood	Flood is reported in 20 years ago due to the river Banganga flowing out side of the Gate	
7	Drainage and sewerage problem facing	Open drainage exists and no sewerage system in the project area.	Drainage system has to be improved
8	Present drinking water problem – quantity and quality	People get water supply from PHED. People exploring water through hand pumps and wells.	
9	Present solid waste collection and disposal problem	Municipality takes care of the Solid waste collection, which is manually & disposed off in disposal site.	
10	Availability of labour during construction time	Sufficient labour will be available in this area.	
11	Access road to project site	Road available.	
12	Perception of villagers on tree felling and afforestation	Tree cutting not required in this project.	
13	Dust and noise pollution and disturbances during construction work	No dust and noise is expected beyond limit during construction works, people are agree for some extent of dust and noise	
14	Setting up worker camp site within the village/project locality	No need for setting up labour camp	
15	Safety of residents during	There is dense residential	Residents' safety

S. No.	Key Issues/Demands	Perception of community	Action to be Taken
	construction phase and plying of vehicle for construction activities	area near the site hence their safety should be taken in consideration during repairing work, plying of construction vehicle is not expected	should be taken in to consideration during repairing works
16	Conflict among beneficiaries downstream users – water supply project using of river water	Not applicable for this project	
17	Requirement of enhancement of other facilities	People want drainage and sewer system is the locality	Improvement of drainage system is taken in to consideration

NAME AND POSITION OF PERSONS CONSULTED:

1. Gansi Lal- Local resident
2. Mohd. Omar- Local resident, ex-army man and shopkeeper
3. Brij Mohan- Local Resident
4. Omar Daraj- Local Resident
5. Rahul Sharma- Local resident

Appendix 3

Recommended Contract Clauses

A. Sources of Materials
- (i) Use quarry sites and sources permitted by government;
- (ii) Verify suitability of all material sources and obtain approval of IPIU;
- (iii) If additional quarries will be required after construction has started, obtain written approval from IPMU; and;
- (iv) Submit to DSC on a monthly basis documentation of sources of materials.

B. Air Quality
- (i) Consult with IPIU/DSC on the designated areas for stockpiling of clay, soils, gravel, and other construction materials;
- (ii) Avoid to stockpile the excavated soil at site, remove the excess soil immediately from site to designated dump yard.
- (iii) Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather;
- (iv) Measurement of air quality at sub-project locations as per EMP
- (v) Use tarpaulins to cover sand and other loose material when transported by trucks; and
- (vi) Fit all heavy equipment and machinery with air pollution control devices which are operating correctly.

C. Surface Water Quality
- (i) Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;
- (ii) Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with IPIU/DSC on designated disposal areas;
- (iii) Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;
- (iv) Place storage areas for fuels and lubricants away from any drainage leading to water bodies;
- (v) Dispose any wastes generated by construction activities in designated sites;
- (vi) Dispose collected silt immediately (no stockpiling) in designated sites;
- (vii) Conduct surface quality inspection according to the Environmental Management Plan (EMP).

D. Noise Levels
- (i) Plan activities in consultation with IPIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance;
- (ii) Require horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach;
- (iii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor; and
- (iv) Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10 m or more from the vehicle/s.
- (v) Measurement of noise level at sub-project locations as per EMP

E. Existing Infrastructure and Facilities
- (i) Obtain from IPIU and/or DSC the list of affected utilities and operators;

(ii) Prepare a contingency plan to include actions to be done in case of unintentional interruption of services

F. Accessibility

(i) Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites;
(ii) Schedule transport and hauling activities during non-peak hours;
(iii) Locate entry and exit points in areas where there is low potential for traffic congestion;
(iv) Keep the site free from all unnecessary obstructions;
(v) Drive vehicles in a considerate manner;
(vi) Coordinate with Baran Municipal Traffic Office for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; and
(vii) Notify affected sensitive receptors by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints.

G. Landscape and Aesthetics

(i) Prepare and implement Waste Management Plan;
(ii) Recover used oil and lubricants and reuse or remove from the sites; (iii) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;
(iv) Remove all wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and
(v) Request IPIU/DSC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.

H. Socio-Economic – Income

(i) Leave spaces for access between mounds of soil;
(ii) Provide walkways and metal sheets where required to maintain access across trenches for people and vehicles;
(iii) Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools;
(iv) Consult businesses, religious place authority and institutions regarding operating hours and factoring this in work schedules; and
(v) Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.

I. Socio-Economic – Employment

(i) Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; and
(ii) Secure construction materials from local market.

J. Occupational Health and Safety

(i) Develop and implement site-specific Health and Safety (H and S) Plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use Personal Protective Equipment; (c) H and S Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents;
(ii) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;
(iii) Provide medical insurance coverage for workers;
(iv) Secure all installations from unauthorized intrusion and accident risks;
(v) Provide supplies of potable drinking water;

(vi) Provide clean eating areas where workers are not exposed to hazardous or noxious substances;
(vii) Provide H and S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers;
(viii) Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted;
(ix) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;
(x) Ensure moving equipment is outfitted with audible back-up alarms;
(xi) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate;
(xii) Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively, and
(xiii) Use proper stairs, staging, platforms, barricades and Personal Protective Equipments (PPEs) such as safety belt, while working at height more that 1.5 meters.

K. Community Health and Safety.
(i) Plan routes to avoid times of peak-pedestrian activities.
(ii) Liaise with IPIU/DSC in identifying high-risk areas on route cards/maps.
(iii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure.
(iv) Provide road signs and flag persons to warn of dangerous conditions.

L. Work Camps
(i) Consult with IPIU/DSC before locating project offices, sheds, and construction plants;
(ii) Minimize removal of vegetation and disallow cutting of trees;
(iii) Provide water and sanitation facilities for employees;
(iv) Prohibit employees from poaching wildlife and cutting of trees for firewood;
(v) Train employees in the storage and handling of materials which can potentially cause soil contamination;
(vi) Recover used oil and lubricants and reuse or remove from the site;
(vii) Manage solid waste and vegetative garbage according to the following preference hierarchy: reuse, recycling and disposal to designated areas;
(viii) Remove all wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and
(ix) Request IPIU/DSC to report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.

M. Social and Cultural Resources
(i) Strictly follow the protocol for chance finds in any excavation work;
(ii) Request IPIU/DSC or any authorized person with archaeological field training to observe excavation;
(iii) Stop work immediately to allow further investigation if any finds are suspected; and

(iv) Inform IPIU/DSC if a find is suspected, and take any action they require ensuring its removal or protection in situ.