Draft Initial Environmental Examination

October 2014

IND: Infrastructure Development Investment Program for Tourism, Tranche 3 – Punjab, State-Wide Tourism Centres, Interpretation Centres and Signage

Prepared by Government of Punjab for the Asian Development Bank.

CURRENCY EQUIVALENTS

(as of 16 October 2014)

Currency unit	–	India Rupee/s (Re/Rs)
Rs1.00	=	$0.162
$1.00	=	Rs61.585

ABBREVIATIONS

ADB –	Asian Development Bank
BPL –	Below Poverty Line
CPCB –	Central Pollution Control Board
DSC –	Design and Supervision Consultants
DoT –	Department of Tourism
EA-	Executing Agency
EAC –	Expert Appraisal Committee
EARF –	Environmental Assessment Review Framework
EIA –	Environmental Impact Assessment
EMP –	Environmental Management Plan
GoI –	Government of India
GoP-	Government of Punjab
PHTPB-	Punjab Heritage and Tourism Promotion Board
PPCB –	Punjab Pollution Control Board
IDIPT –	Infrastructure Development Investment Program for Tourism
IEE –	Initial environmental examination
MC –	Municipal Corporation
MINARS -	Monitoring of Indian National Aquatic Resources Series
MLD –	Million Litres per day
MOEF –	Ministry of Environment and Forests
MSL –	Mean Sea Level
NGO –	Non-Governmental Organization
O&M –	Operations and Management
PIU –	Project Implementation Unit
PMC-	Project Management Consultants
PMU –	Project Management Unit
PWD –	Public Works Department
REA –	Rapid Environmental Assessment
SEAC –	State Expert Appraisal Committee
SPM –	Suspended Particulate Matter
SPS –	Safeguards Policy Statement
TCP –	Town and Country Planning
TMP-	Traffic Management Plan
TDS –	Total Dissolved Solids
TSS –	Total Suspended Solids

NOTES

(i) The fiscal year (FY) of the Government of India ends on 31 March. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2008 ends on 31 March 2008

(ii) In this report, "$" refers to US dollars unless otherwise stated

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EXECTUVE SUMMARY

1. **Background.** The Infrastructure Development Investment Program for Tourism Financing Facility (the Facility) will develop and improve basic urban infrastructure and services in the four participating states of Himachal Pradesh, Punjab, Uttarakhand and Tamil Nadu to support the tourism sector as a key driver for economic growth. It will focus on: (i) strengthening connectivity to and among key tourist destinations; (ii) improving basic urban infrastructure and services, such as water supply, road and public transport, solid waste management and environmental improvement, at existing and emerging tourist destinations to ensure urban amenities and safety for the visitors, and protect nature and culture-based attractions. Physical infrastructure investments will be accompanied by: (iii) capacity building programs for concerned sector agencies and local communities for better management of the tourist destinations and for more active participation in the tourism-related economic activities, respectively.

2. The subproject is part of Eastern and Western Circuits. The Eastern Corridor connects the main pilgrimage, historic and natural tourism assets of the eastern part of the state located on a line from Patiala, Fatehgarh Sahib, Chandigarh, Rajpura, Rupnagar, Ghanouli, Kiratpur, and Nangal. The Western Corridor is located in the North-western segment of the state and includes the districts of Amritsar, Gurdaspur, Kapurthala and Tarn Taran. The area borders Pakistan in the west and the River Beas flows through the eastern portion.

3. The subproject aims to enhance urban environment of tourist destinations with support facilities at strategic locations such as Ropar (existing TIC), and Chandigarh (existing Archive Building, Sector 38) in Eastern Circuit and Kapurthala (new construction in Pushpa Gujaral Science City) in Western Circuit. This project specifically caters to increased demand of tourist information with simultaneous development / enhancement of tourist destinations in all districts of Punjab.

Implementation arrangements.

4. The implementation agency for the project is the Punjab Heritage and Tourism Promotion Board (PHTPB), Chandigarh.

5. PHTPB has specialized persons and project managers catering to the needs of project aspects. Several specialized branches are created within the department as part of institutional strengthening. However, during the implementation if there will be a need, the institutional strengthening of PHTPB will be done by creating the implementation units within the department as suggested by the UNWTO Report. This will include:

6. Tourism Cultural Heritage Unit (TCHU) that will implement the state tourism cultural heritage policy and provide support to the proposed Punjab Heritage Buildings and Sites Commission. (PHB&SC); a Community-Based Tourism Unit (CBTU) to implement CBT and ecotourism policies; and a Tourism Investment Promotion Unit (TIPU) to implement policy to enhance the role of the private sector in the provision, operation and maintenance of tourist infrastructure and facilities and services including partnerships with local communities and cultural and heritage site managers. Attached to the PHTPB should be a Punjab Heritage Buildings and Sites Commission (PHB&SC) to focus on revitalization and valorization of private and publicly-owned cultural heritage assets; and a Public Private Sector Partnership (PPP)-based Tourism Marketing and Promotion Board (TMPB) to implement public-private partnership-based development and marketing and promotions initiatives.

7. The need for the support staff for provision of services and implementation of subproject would be detailed in the DPR stages.

8. **Categorization.** The project at Ropar, Chandigarh and Kapurthala town is under Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively is classified as Environmental Category 'B' as per the SPS as no significant impacts are envisioned. Accordingly this Initial Environmental Examination (IEE) has been prepared as per preliminary design and assesses the environmental impacts and provides mitigation and monitoring measures to ensure no significant impacts as a result of the subproject.

9. **Subproject Scope.** The major scope of this subproject as per Summary Appraisal Report (SAR) 1 - Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively are:

10. The subproject includes following components:
    (i) Provision of Circuit Tourist Information /Interpretation Centre in Eastern Circuit at Ropar (existing TIC) and Chandigarh (Archive Building, Sector 38);
    (ii) Provision of Circuit Tourist Information/ Interpretation Centre in Western Circuit at Kapurthala (Pushpa Gujaral Science City).

11. The detailed design will be completed by Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively, and consequently the procurement process will be commenced.

12. Description of the Environment. Subproject components are located in rural and urban areas of Rupnagar town, Chandigarh and Kapurthala. The present ecological setting of the subproject areas is in the existing buildings for Ropar and Chandigarh and for Kapurthala it requires new construction to be developed. There are no protected areas, wetlands, mangroves, or estuaries within or adjacent the subproject components sites of Kapurthala and Chandigarh, while for Ropar, the project site is outside the wetland boundary, and no construction is required.

13. **Environmental Management.** An environmental management plan (EMP) is included as part of this IEE, which includes (i) mitigation measures for environmental impacts during implementation; (ii) an environmental monitoring program, and the responsible entities for mitigating, monitoring, and reporting; (iii) public consultation and information disclosure; and (iv) grievance redress mechanism. A number of impacts and their significance have already been avoided by environmental considerations in the designs. The EMP will be included in civil work bidding and contract documents.

14. Locations and siting of the proposed infrastructures were considered to further reduce impacts. The concepts considered in design of the subproject are (i) design, material and scale will be compatible to the local architectural, physical, cultural and landscaping elements; (ii) preference will be given to the use of local material and labour as best as possible; (iii) for conservation, local construction material available in the nearby region as best as possible suiting to those in existence; (iv) all painting (interior and exterior) will be with environment-friendly low volatile organic compounds paints (v) earth backfill, if any will be done from the site excavated material; and (vi) ensuring all planning and design interventions and decisions are

made in consultation with local communities and reflecting inputs from public consultation and disclosure for site selection.

15. During the construction phase, impacts mainly arise from the need to dispose of moderate quantities of waste soil. These are common impacts of construction in urban areas, and there are well developed methods for their mitigation. Measures such as conducting work in lean season and minimizing inconvenience by best construction methods will be employed. In the operational phase, all facilities and infrastructure will operate with routine maintenance, which should not affect the environment. Facilities will need to be repaired from time to time, but environmental impacts will be much less than those of the construction period as the work will be infrequent, affecting small areas only.

16. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. Mitigation will be assured by a program of environmental monitoring to be conducted during construction. 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. Any requirements for corrective action will be reported to the ADB.

17. The tourists, villagers, business people (organizations) and citizens of both Eastern and Western Circuit are the major beneficiaries of the project.

18. The most noticeable net environmental benefits to the tourists and population of the town will be positive and large as the proposed subproject will improve access to reliable and adequate tourism information, interpretation facilities access to documentation/ evidence and propagate the local traditions and cultural heritage of the state. This subproject will also provide a common platform for local traditions and values; provide and improve business opportunities for local communities, linked to the cultural and natural heritage tourism.

19. **Consultation, Disclosure and Grievance Redress.** The stakeholders were involved in developing the IEE through discussions on-site and public consultation, after which views expressed were incorporated into the IEE and in the planning and development of the subproject. The IEE will be made available at public locations in the town and will be disclosed to a wider audience via the ADB and PHTPB websites. The consultation process will be continued and expanded during project implementation to ensure that stakeholders are fully engaged in the project and have the opportunity to participate in its development and implementation. Public consultations will be done in the preparation of the detailed design and final IEE. A grievance redress mechanism is described within the IEE to ensure any public grievances are addressed quickly.

20. **Monitoring and Reporting.** The PMU, PIU, PMC and DSC will be responsible for environmental monitoring. The PIU, with support from the DSC, will submit monthly, quarterly and semi-annual monitoring reports to the PMU. The PMU will consolidate the reports with assistance of PMC and will send semi-annual monitoring reports to ADB. ADB will post the environmental monitoring reports on its website.

21. **Conclusions and Recommendations.** The subproject Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively is unlikely to cause significant adverse impacts. The potential 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, there are no significant impacts and the classification of the subproject as Category “B” is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS, 2009 or Government of India EIA Notification, 2006.

I. INTRODUCTION

1. **Background.** The Infrastructure Development Investment Program for Tourism (IDIPT) will develop and improve basic urban infrastructure and services in the four participating states of Himachal Pradesh, Punjab, Uttarakhand and Tamil Nadu to support the tourism sector as a key driver for economic growth. It will focus on: (i) strengthening connectivity to and among key tourist destinations; (ii) improving basic urban infrastructure and services, such as water supply, road and public transport, solid waste management and environmental improvement, at existing and emerging tourist destinations to ensure urban amenities and safety for the visitors, and protect nature and culture-based attractions. Physical infrastructure investments will be accompanied by: (iii) capacity building programs for concerned sector agencies and local communities for better management of the tourist destinations and for more active participation in the tourism-related economic activities, respectively.

2. The impact of IDIPT is enhanced contribution of the tourism sector to sustainable and inclusive economic growth, and the outcome is increased volume of domestic and international tourists to destinations within participating states. The outputs are: (i) enhanced quality of natural and cultural tourist attractions to ensure convenience and safety for visitors; (ii) greater participation by local communities in tourism-related economic and livelihood activities; (iii) improved basic urban infrastructure and incidental services at existing and emerging tourist destinations and gateways; (iv) improved connectivity to tourist attractions focusing on the improvement of last-mile connectivity; and (v) strengthened capacity of concerned sector agencies and local communities for planning, development, management, and marketing of tourist destinations and attractions, and promoting private sector participation and small businesses.

3. **Implementation arrangements.** The Department of Tourism (DOT), Government of Punjab is the executing agency. The Punjab Heritage and Tourism Promotion Board (PHTPB) is the implementing agency with a fully staffed Project Management Unit (PMU). Two PIUs (Amritsar and Rupnagar) are established and to be fully staffed shortly (Amritsar PIU to mobilize a project manager by 10 October 2014). A State-Level Empowered Committee (SLEC) was established to take all decisions related to the Investment Program on behalf of the State. A team of consultants including the Project Management Consultant (PMC), and the Design Supervision Consultant (DSC) are supporting the PMU and PIUs in project implementation, along with one package for Tourist Statistics, and two packages for Interpretive Materials (under recruitment).

4. Proposed sub-project. The subproject Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively is part of both Eastern and Western circuit. The objective of this project is to provide Tourist Information /Interpretation Centre including allied tourist's facilities for providing quality information to the visitors. The facilities under the project will provide interactive display and facilitate the visitors with navigation, booking and accommodation facilities. It will further enable local community people to have access for artisans to showcase their innovations and build a strong relationship with local tourism businesses by supporting and encouraging the quality. To provide space for exhibition and stage shows to support interpretation of the sites, to educate visitors and provide good visitor facilities, by enhancing visitor experiences and recommendations.

5. The major scope of this subproject as per Summary Appraisal Report (SAR) 1 - Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively are:

(i) Provision of Circuit Tourist Information /Interpretation Centers in Eastern Circuit at Ropar (Existing TIC), and Chandigarh, (Archive Building, Sector 38);
(ii) Provision of Circuit Tourist Information/ Interpretation Centre in Western Circuit at Kapurthala (Pushpa Gujaral Science City)
(iii) Tourist route and information signages in Eastern Circuit;
(iv) Tourist route and information signages in Western Circuit.

6. Sub project components:

(i) The proposed sub project components are Provision of Tourist Reception Centres
(ii) Site development which includes landscaping (hardscape and softscape) and outdoor activities.
(iii) Construction of new buildings for Tourist Information centre at Pushpa Gujaral Science City, Kapurthala Provision of boundary wall and gate.
(iv) Provision of signages of uniform design at approximately 600 locations

7. Categorization. As per the Asian Development Bank's (ADB) Safeguard Policy Statement 2009, and in line with the Environment Assessment & Review Framework (EARF) for the project, the sub-project "State-wide Tourism Centers, Interpretation Centers and Signage" are categorized as 'B' and an Initial Environmental Examination (IEE) prepared. The IEE was based on a review of sub-project site plans and reports; field visits, and secondary data to characterize the environment and identify potential impacts; and interviews and discussions with stakeholders.

8. Purpose of the IEE. This report gives an account of the initial environmental examination (IEE) of subproject as per SAR-1 and preliminary design. The adverse environmental impacts for this contract package are primarily related to construction activities. The proposed construction activity is selected considering historical and cultural value of the city. There will be construction impacts associated with proposed civil and conservation works but these will be of limited intensity and of short duration. Therefore, as per the Asian Development Bank's (ADB) Environmental Assessment Guidelines (SPS 2009), the sub-project components are categorized as 'B' and an IEE carried out. This IEE provides mitigation measures for impacts related to location, design, construction, operation, and maintenance. The REA checklist is attached as Appendix 1 with this report.

II. DESCRIPTION OF THE SUB PROJECT

9. Location: The proposed project sites of Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively are located within the urban and rural areas of the Ropar, Chandigarh and Kapurthala district. The sub-project area involving new construction falls under the Kapurthala District, The subproject area falls under the Kapurthala District. The Kapurthala District lies between North latitude 31°22′46″ and 75°23′05″East longitude. Kapurthala is a significant city of western circuit and is located on the Grand Trunk Road (NH 1). The total area of the district is 1,633 km2 and average elevation of the city is 234 m above mean seal level (MSL). The city is connected with railway and an international airport.

10. Brief History: All the subprojects are in Ropar, Chandigarh and Kapurthala District, each of the subprojects description and the subproject activities are described below:

(i) The subproject is part of the Eastern and Western Circuits. The Eastern Corridor connects the main pilgrimage, historic and natural tourism assets of the eastern part of the state located at Patiala, Fatehgarh Sahib, Chandigarh, Mohali, Rajpura, Rupnagar, Ghanouli, Kiratpur, Nangal, etc. The Western Corridor is located in the North-western segment of the state and includes the districts of Amritsar, Gurdaspur, Kapurthala and Tarn Taran. The area borders Pakistan in the west and the River Beas flows through the eastern portion.

(ii) The locations identified for the proposed facilities experience high tourist traffic and are optimum location considering the tourist resources and their tourist potential. The fact that the TRC/TIC is proposed within the same building or complex of a heritage monument taken up for conservation in Tranche 3 is an indication of targeting the maximum number of tourists.

A. Proposed Subproject

1. Eastern Circuit

11. Existing Tourist Information Centre, Ropar Town: Ropar possesses rich heritage and is considered to be one of the oldest towns in Punjab. The remains obtained from an excavation show that Ropar is one of the major sites of Indus valley Civilization. The town of Ropar is district headquarters, which is located at an approximate distance of 42 Km from Chandigarh city, the Gateway Centre. Ropar is the entry to Punjab for tourists going to Himachal Pradesh or the Western Circuit of Punjab. Ropar itself is the main centre in the Eastern Circuit of Punjab and has many historical / religious places including Gurudwaras such as Bhhatha Sahib, Tibbi Sahib and Sadabarat Sahib. Existing Tourist information Centre at Ropar is proposed for upgrading into the Tourist Reception / Interpretation Centre. The location of the site owes close proximity to National Highway-21(GT Road) and Ropar Bus Stand.

12. Archives Bhawan Sector 38, Chandigarh: The location of Tourist Information / Interpretation Centre in Chandigarh is proposed at PHTPB's own complex. The city is identified as a Gateway centre for Eastern Circuit. Owing to its planning, rich architecture, and gardens the city attracts tourists from all over India and the world. Hence this would be the best location to promote tourism in Punjab.

2. Western Circuit

13. Pushpa Gujral Science City, Kapurthala: Pushpa Gujral Science City is one of the locations identified for development of Tourist Information / Interpretation Centre. The location of being one of the biggest Science Parks in North India makes it the best location for developing TRC. This will help to promote tourism in Kapurthala which offers excellent tourism products not only because of their unique architectural character but also their interesting history related to the benevolent rule of the Maharajas, in Jalandhar which is a high growth business tourism location combined with religious / pilgrimage sites, and in Tarn Taran which possesses diverse tourism products – from heritage to eco-tourism.

Table 1: Components of Tourist Reception Centre

Description	Area (Sq m)
Entrance Lobby with information and travel desk	100
Exhibition Hall/ Gallery	150
Auditorium/ Multi-purpose hall	200

Description	Area (Sq m)
Restaurant / Caféteria	200
E- Kiosks/ interactive displays	50
Shops	100
Administration space	150
Toilets	50
Parking area (assuming 15 car spaces, 3 buses, 20 2-wheelers)	850
Total	1850

(i) Site development which includes landscaping (hardscape and softscape) and outdoor activities.
(ii) Construction of new buildings for Tourist Reception Centre at Pushpa Gujral Science City, Kapurthala.
(iii) Provision of Signage of uniform design at approximately 600 locations.
(iv) Use of the building will have three components :
- Provision of interpretative materials including multimedia content
- Fitting and fixtures
- Display materials

(v) Provision of services such as electrical, plumbing, HVAC etc.
(vi) Capacity building for tourism development and management. This will comprise following components:
- Human resource development: This includes training to the local staff, guides, local community and emphasizing women participation. The subproject will provide employment opportunities as guides, supply of art and craft material, and employment in restaurant/cafeteria.
- Tourism awareness: increasing local participation towards tourism (Social, economic and environment impacts).
- Management of sector and product development
- Tourism marketing: This will be done through printed marketing materials to guide or inform visitors about the State's tourist attractions, facilities and services. Information system including website and physical visitor centres to support tourist visits to and within the State.

B. Existing Conditions:

(i) The existing TICs in the state are in unappealing form with few located in temporary buildings having inadequate infrastructure and outdated / non-functional equipment.
(ii) Limited tourism related signage in the State lacking impact or creativity to excite the tourists.
(iii) The sites identified for TRC offer variety of tourist sites / attractions.

14. The two sites of Ropar and Chandigarh for subproject (Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively are owned by Department of Tourism and Department of Cultural Affairs and Museums while the site at Kapurthala is under the Pushpa Gujral Science City. All required NOCs and undertakings have been obtained from the entire line agency departments thus no land acquisition is required. The status of the NoCs and undertakings is enclosed at Appendix 10. The sites are not within any protected areas.

15. The design, material and scale will be compatible to the local architectural, physical, cultural and landscaping elements. Preference will also be given to the use of local material and

labour as best as possible. For the conservation, local construction material available in the nearby region as best as possible suiting to those in existence. All painting (interior and exterior) will be with environment-friendly low volatile organic compound paints.

16. The earth backfill, if any will be done from the site excavated material. Stone, aggregate, sand and other raw materials required are available within 50 km radius from sites. Also formwork and skilled labour is locally available. For brick wall construction, bricks are also available within 50 km radius from the proposed site/region.

17. Water supply during construction will be provided by Municipal Corporation and its Public Health Division (IPH) from their existing system or will be transported through mobile water tankers, if required. Solid waste generated at sites will be disposed at designated areas through Municipal Corporation.

18. Site plan for the proposed sub project area is shown in Figure 1. Appendix 2 shows photo illustration of the project site.

C. Implementation Schedule

19. Preliminary design of the subproject has been completed. The detailed design will be completed by Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively. It is estimated that construction period will cover 24 months. The subproject components are expected to be fully operational by.

20. The final detailed implementation schedule will be provided in the updated IEE once the detailed design phase is completed.

III. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

A. ADB Policy

21. 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, and loans involving financial intermediaries, and private sector loans.

22. 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 and 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.

23. **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.

24. **Public Disclosure.** The IEE will be put in an accessible place (e.g., local government offices, libraries, community centers, etc.), and a summary translated into Hindi/Punjabi for the project affected people and other stakeholders shall also be disclosed. The following safeguard documents will be put up in ADB,s website so that the affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation:

(i) For environmental category A projects, a 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 the Project Management Unit (PMU) during project implementation upon receipt.

B. National and State Laws

25. Implementation of the subproject will be governed by the national and State of Punjab State environmental acts, rules, regulations, and standards. These regulations impose restrictions on activities to minimize/mitigate likely impacts on the environment. It is the responsibility of the project executing and implementing agencies to ensure subprojects are consistent with the legal framework, whether national, state or municipal/local. Compliance is required in all stages of the subproject including design, construction, and operation and maintenance.

26. The realm of environmental regulations and mandatory requirements for the proposed sub-project is shown in Table 2. The Environmental Impact Assessment (EIA) notification, 2006 by the Ministry of Environment and Forests (MoEF, GoI) specifies the mandatory environmental clearance requirements. Accordingly, projects and activities are broadly categorized in two categories[1] - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and; natural and man-made resources.

[1] All projects or activities included as Category 'A' in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, will require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoEF) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification; All projects or activities included as Category 'B' in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfil the General Conditions (GC) stipulated in the Schedule, *will* require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. In addition, General Condition (GC) of the notification specifies that any project or activity specified in Category 'B' will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life Protection) Act, 1972, (ii) Critically Polluted areas as notified by the Central Pollution Control Board from time to time, (iii) Notified Eco-sensitive areas, (iv) inter-State boundaries and international boundaries.

Table 2: Environmental Regulatory Compliance

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
State-wide Tourism Centers, Interpretation Centers and Signage Provision of Circuit Tourist Information /Interpretation Centers in Eastern Circuit at Ropar (Existing TIC), and Chandigarh, (Archives Building, Sector 38); Provision of Circuit Tourist Information/ Interpretation Centre in Western Circuit at Kapurthala (Pushpa Gujral Science City) Tourist route and information Signage in Eastern Circuit; Tourist route and information Signage in Western Circuit.	The Environment Protection Act, 1986 - under EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impacts.	The sub-project is not covered in the ambit of the EIA notification as they are not covered either under Category A or Category B of the notification. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from the State government or the GoI is not triggered.
	ADB's Safeguard Policy Statement 2009	Categorization of sub-project components into A, B or C and developing required level of environmental assessment for each component. Categorized as B and IEE prepared
	The Wildlife Conservation Act, 1972, amended in 2003 and 2006, provides for protection and management of Protected Areas.	Not applicable. No wildlife protected area.
	The Forest Conservation Act, 1980 and its subsequent amendments necessitate obtaining clearance from the MoEF for diversion of forest land for non-forest purposes.	Project site is not located within forest area. No tree felling is required.
	Water (Prevention and control of pollution) Act, 1974 and; Air (prevention and control of pollution) Act, 1981	Consent for Establishment (CFE) and Consent for Operation (CFO) from the PPCB for setting up of diesel generators (if any) and batching plant to be obtained by the Contractor, prior to commencement of construction works at site. Apart from this CFE and CFO is also required for stone crushers and quarry sites if exclusively setting up for this project, otherwise it has to be ensured that the construction materials is to be procured from approved quarry sites and stone crushers.
	The Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the rules, 1959 provide guidance for carrying out activities, including conservation, construction and reuse in and around the protected monuments.	No sites under the subproject are covered under The Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the rules, 1959 Act.

27. The above table indicates that the proposed sub-project does not need to go through a full-scale environmental assessment process; as the scale of impacts and categorization of the sub-project components will not require consent/ clearances from Competent Authorities. Therefore, any further approvals or clearances from the GoI or GoP are not envisaged. The ADB guidelines, stipulate addressing environmental concerns, if any, of a proposed activity in the initial stages of Project preparation. For this, the ADB Guidelines categorizes the proposed components into categories (A, B or C) to determine the level of environmental assessment required to address the potential impacts. The sub-project has been categorized as B. Accordingly this IEE is prepared to address the potential impacts, in line with the recommended IEE content and structure for Category B projects. All the project components are being implemented at the existing site, with activities/ interventions with minimal or no environmental impacts, except for Tourist Reception Centre (TRC) at Pushpa Gujral Science City, which

involves new construction in a limited area of 1850 sq.m. only, hence the environmental profile of Kapurthala has been discussed in section IV.

28. Table 3 below shows the asset owners and details of no objection certificates (NOC) (scanned copies attached as Appendix 10.

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Table 3: Status of NoCs and undertakings for the sub projects.

	Subproject Component	**Asset Owner**	**Date of NOC/ undertaking**
1.	Ropar Tourist Information Centre, up gradation of TIC at Ropar to Tourist Reception Centre.	Secretary, Tourism and Director, Cultural Affairs Archaeology & Museums, Punjab, Chandigarh	04/10/14
2.	Archives Bhawan, Chandigarh (Development of craft outlet and TRC)	Secretary, Tourism and Director, Cultural Affairs Archaeology & Museums, Punjab, Chandigarh	Sept 2014
3.	Pushpa Gujral Science City (Interpretation Centre/ TRC, signages and guide maps).	Neelima Jerath, Director General, Pushpa Gujral Science City and Deputy Commissioner, Kapurthala	27/09/14

IV. DESCRIPTION OF ENVIRONMENT

A. Physical Environment

1. Location

29. The subproject area falls under the Kapurthala District. The Kapurthala District lies between North latitude 31° 07' and 31°39' and East longitude 74° 55' and 75° 36'. Kapurthala is a significant city of western circuit and is located on the Grand Trunk Road (NH 1). The city lies between 31007' to 32003'N latitude and 74029' to 78023'E / 31063'; 74087' longitude. Average elevation of the city is 234 m above mean seal level (MSL). The city is connected with railway and an international airport. The town has several Gurudwaras commemorating events connected with the lifez of Guru Nanak. The three districts are located in the seismic zone IV.

2. Climate

30. The climate of the Kapurthala District may be divided into four seasons. The cold season starts from mid - November to the early March, which is followed by the hot season which lasts till the end of June. July, August and the first half of September constitute the south-west monsoon season. The period from mid-September to the middle of November may be termed as the post-monsoon or transitional period.

3. Geology & Soil

31. The soils of the district vary in texture generally from loam to silty clay loam except along the Sutlej River and chos where some sandy patches were found. In general, there are two type of soils found in the district.

(i) Reddish chestnut soils which is seen in the northeastern part of the district, particularly in the Rupnagar and Anandpur Sahib blocks. These soils are loam to clay-loam in nature and decalcified and

(ii) Tropical Arid Brown soils (Weakly Solonized) are mainly found in rest of the area which is mainly calcareous sandy loam.

32. The major soil types found in the district are the arid brown soils and tropical arid brown soils. The arid brown soils are found mostly in southern parts of the district and tropical arid brown soils are found in the Northern part and Phagwara block of the district. The arid brown soils are calcareous in nature and Tropical arid brown soil is deficient in nitrogen, potassium and phosphorus.

33. The soils of the Kapurthala district plains belong to the typical alluvium of the Indo-Gangetic plains. The majority of the soils are loamy or sandy loam consisting of a soil crust of varying depth. The soils have generally an alkaline reaction and are adequately supplied with phosphorus and potash, but are deficient in organic matter and nitrogen. The soil of the project area is yellow clayey soil.

4. Surface water

34. Beas River accounts for surface water in Kapurthala District. The river floods during the rainy season. All through the course of Beas River, a strip of shallow alluvial soil fringes its bank which is subject to inundation during the rainy season. The main channel of the river is broad, dotted with islands and wide pools. The depth of water varies from about 1.5 metres during the dry season to about 4.5 metres during the rainy season. The rivulet Kali Bein is the chief tributary of the Beas in Kapurthala district.

Ambient Air and Noise Quality

35. Ambient air quality measurements in Kapurthala district, as monitored by the Punjab Pollution Control Board under the NAMP program (National Ambient Air Quality Monitoring Program) within urban areas of Kapurhala are shown in **Table 4** below.

Table 4: Ambient Air Quality of Kapurthala

Parameters	**SO2**		**NO2**		**RSPM**		**SPM**	
Location/ Class	Industrial	Residential	Industrial	Residential	Industrial	Residential	Industrial	Residential
Kapurthala	L	L	L	L	H	C	H	H

Source: Source: PPCB, Patiala

36. From the observation it may be concluded that the noxious gases like SO2, NO2 are well within the limits, however, the RSPM and SPM exceeds the limitation. This may be due to the moving traffic or due to any anthropogenic activities. The given information shall be updated during the DPR stage of the project, where the primary environmental monitoring shall be performed surrounding the subproject area to get a clear analysis of the construction impacts on the ambient air.

37. Ambient noise quality has been monitored by Punjab Pollution Control Board Pollution (PPCB) in Gobindpura of Kapurthala District and ranges from 62 dB(A) to 66 dB(A). Even in sensitive zones of Kapurthala, the maximum levels were 66 dB at day and 48 dB (A) at night against the prescribed limits of 50 dB(A) at day and 40 dB(A) at night.

38. However specifically for the project site area air and noise quality monitoring will be conducted under the project during detailed design stage.

B. Ecological Environment

39. **Flora.** The floral diversity consists of scattered Khair (*Acacia catechu*), Chhal (*Anogeisus latifolia*), Jhingan (*Lanea grandis*), Kikar (*Acacia nilotica*) Phalahi (*Acacia modesta*), Ber (*Zizyphus mauritiana*), Shisham (*Dalbergia sisoos*), Neem (*Azadirachta Indica*), Mango(*Mangifera indica*), Dhak (*Butea monosperma*) etc., Shrubs such as Garna (*Carissa spinarum*), Mehnder (*Dodona viscasa*), Mallah (*Zizyphus nummularia*) Gandhala (*Marraya koenigil*), Basuti (*Adathoda vasica*), jhav(*Artemesia spp*), hIns (*Capparis decidua*), Panwar (*Cassia tara*), Phul buti (*Lantana camara*), etc. and grasses such as (*Saccharum bengalenese*).

40. The forest strips have mostly artificially raised plantations like Shisham (Dalbergia sissoo), Eucalyptus (*Edcalyptus spp*), Siris (*Albizzia lebbek*), Mango (*Mangifera indica*) Jaman (*Syzygium communi*) Tun (*Cedrela toona*) Neem (*Azadiachta indica*). Some of the mixed plantations are Amaltas (*Cassia fistula*) Jacranda (*Jacranda ovalifolia*), Kachnar (*Bauhinca variegata*), Bottle brush (*Callistemon vimnalis*) Gulmohar (*Delomix rigia*) Amla (*Emblica officivalis*) etc.

41. **Fauna.** The main animals found in these areas are Blue Bull (*Boselaphus tragocamelus*), Wild boar (*Sus scrofa*), Sambhar (*Cervas unicolor*), Jackal (*Canis aureus*), Common Mongoose (*Herpestes spp.*), Indian Porcupine (*Hystrix indica*) and Rhesus Monkey (*Macaca mulatta*) etc.

42. The common birds found in the district are :Phalacrocorax niger (vieillot), Butorides striatus chloriceps (Bonaparte), Ardeola grayii (sykes), Bubulcus ibis coromandus (Boddaert), Egretta alba modesta (Gray), E. garzetta (Linnaeus), Anastomus oscitans (Boddaert), C. ciconia (Linnaeus), C. migra (Linnacus), Tadorna ferruginea (pallas), T tadorna(Linnaeus), Nettapus coromandelianus (Gmelin), Haliaeetus leucoryphus (Pallas), Coturnix coromandelica (Gmelin), T. stagnatili (Bechastein), S. pagodrum(Gmelin), Chrysomma sinense (Gmelin).

43. **Protected Areas.** The Ropar TIC is outside the boundaries of the Ropar Wetland. There are no protected forests, wetlands, mangroves or estuaries in the subproject areas. Also there is no forest and wildlife reported within the project area.

C. Socio cultural and Economic Environment

1. Demographic profile

44. The urban population in Kapurthala District was 33% as per 2001 census which increased to 35% in 2011 census. The latest data of population of Kapurthala district is shown in **Table 5** below:

Table 5: Population Data of Kapurthala District

Population Distribution	2001		2011	
	Punjab	Kapurthala	Punjab	Kapurthala
Area (Sq.km)	50,362	1633	50,362	1633
Avg. HH size	5.6	5.5	5.0	4.9
Total Population	24,358,999	754521	27,743,338	815168
AAGR (1991-2001-2011)	1.8	1.6	1.3	0.8
Total Urban Pop	8,262,511	246527	10,399,146	282462
Total Rural Pop	16,096,488	507994	17,344,192	532706
% of Urban Population	33.92	32.67	37.48	34.65

2. Agriculture

45. Agriculture is the main source of economy. The land utilisation pattern shows that net area sown is 780sq.km while area under forest cover and land put to non-agricultural uses are 370 and 140 sq.km respectively. Total cropped area of the district is 1400 sq.km. Rice and maize constitute the main Kharif crops whereas wheat is the main Rabi crop.

3. Industries profile

46. The secondary and tertiary industrial sector activities are pre-dominant in Amritsar and its surrounding urban centers. The main industries of the city are wool, cotton and textile mills as well as dairy and light engineering works. In addition to agriculture, small scale industrial manufacturing include agriculture implements, cycle and cycle parts, nuts and bolt, printing machine, sewing machine and parts, electric motors, electric fans, glass beads, cotton ginning, automobile parts, radio and amplifiers, food products such as papad, jam and murabba, Gur and khandsari, and chemicals including paints and pigments, dyes and colours, soap manufacturing, oil and perfume. People around the villages and wetland are agriculturists and farmers and are dependent on farming.

4. Physical Infrastructure Services

47. Department of Public Health and Kapurthala Municipal Corporation (MC) are planning and implementing drinking water supply as well as sewage disposal. Public Works department is responsible for planning, construction and operation and maintenance of road network; while internal roads are maintained by MC. MC does solid waste disposal and management. Kapurthala has the network of sewerage system with treatment plants.

V. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

48. The assessment of environmental impacts for the proposed interventions under this package has been carried out during the following stages of the project planning and implementation:

(i) **Location impacts.** Impacts associated with site selection, including impacts on environment and resettlement or livelihood related impacts on communities
(ii) **Design impacts.** Impacts arising from project design, including the technology used, scale of operations etc.
(iii) **Construction impacts.** Impacts resulting from construction activities including site clearance, earthworks, civil works, etc.
(iv) **O&M impacts.** Impacts associated with the operation and maintenance of the infrastructure built in the project.

49. The proposal envisages medium scale construction activity in the adjoining area of existing buildings and facilities on the site. This would result in some environmental impacts typical to small construction activity even though the proposed facility is compatible with the existing activities taking place at these sites. The plot of land for development of proposed facilities is available inside the existing premises free from any encumbrances and with easy accessibility for the visitors.

(i) The site is located within densely populated area of city. Gaining free access and movement of workers, vehicles and other construction related machinery would be an issue that will be dealt with by obtaining requisite permissions before

commencement of construction works on site. Identity cards & vehicle permits shall be provided by the contractor for all such movement to and from the site.

(ii) Other impacts related to construction activities such as generation of dust and noise, removal of construction debris and demolition wastes etc are envisaged which shall be minimized and addressed by adopting safe engineering practices and appropriate building design. Caution will be exercised in planning for safe construction and operations phase to minimize disturbance to the adjoining existing activities.

(iii) Provision for water for construction will be made through municipal water supply or through mobile water tankers.

50. **Land Acquisition and Resettlement and cultural Impacts.** The proposed sites of subproject Package No. PB/IDIPT/T3/01/01 & 16 to be advertised by Q2/2016 and Q1/ 2016 respectively are located within existing facilities, and the creation of such a facility does not have any adverse cultural impact. Also, as per the resettlement framework, the proposed categorization for this project is Category C for involuntary resettlement (IR) as it do not result in any physical or economic displacement due to involuntary acquisition of land, or involuntary restrictions on land use or access to the site.

51. **Design Considerations to Avoid Environmental Impacts** The following are design considerations to avoid environmental impacts:

(i) Incorporation of adequate storm water drainage provisions.

(ii) Adoption of design compatible with the natural environment and suitable selection of materials to enhance the aesthetic appeal and blend with the natural surroundings.

(iii) Straight lines and simple geometry in the proposed landscape and architectural features.

(iv) Use of subtle colours and simple ornamentation in the structures.

(v) Natural tree species in the proposed landscape.

(vi) Use of local stone in the proposed walkways and built structures thus maintaining a rustic architectural character

52. The results of interventions are unobtrusive and will be integral part of the ambience of the site. The physical components have been proposed with minimalist design treatment emphasising use of local materials (wood, stone, etc.) as defined in the management plan of the area.

A. Assessment of Environmental Impacts

53. **Determination of Area of Influence.** The primary impact areas are (i) sites for proposed project components; (ii) main routes/intersections which will be traversed by construction vehicles; and (ii) quarries and borrow pits as sources of construction materials. The secondary impact areas are: (i) entire town area outside of the delineated primary impact area; and (ii) entire Rupnagar district in terms of over-all environmental improvement.

54. In the case of this subproject the components will involve straight forward construction and operation, and impacts will be mainly localized, short in duration and expected only during construction period.

B. Pre-construction Impacts and Mitigation Measures

55. Consents, permits, clearances, NOCs, etc. Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works. The following will be conducted during detailed design phase:

(i) Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.
(ii) Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc.
(iii) Include in detailed design drawings and documents all conditions and provisions if necessary

56. **Utilities.** Interruption of services (water supply, electricity, toilets etc.) will be scheduled and intermittently related to localized construction activities. To mitigate impacts, PIU/DSC will:

(i) Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during the construction phase.
(ii) Require contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.
(iii) Require contractor to obtain from the PIU and/or DSC the list of affected utilities and operators;
(iv) If relocations are necessary, contractor along with PIU/DSC will coordinate with the providers/line agencies to relocate the utility.
(v) Social and Cultural Resources. There is a risk that any work involving ground disturbance can uncover and damage archaeological and historical remains. Although no such sites have been identified. For this subproject, excavation will occur in and around existing sites, RoWs and specified government land so no risk is foreseen to these structures. Nevertheless, the PIU/DSC will:

- Consult Archaeological Survey of India and/or State Department of Archaeology to obtain an expert assessment of the archaeological potential of the site.
- Consider alternatives if the site is found to be of medium or high risk.
- Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available.
- Sites for construction work camps and areas for stockpile, storage and disposal. The subproject site is within the existing site premises where there is enough vacant space for construction work camps including labour camps. However, the contractor will be required to meet the following criteria for selection of the construction sites:
  - Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc.
  - Residential areas will not be considered so as 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).
  - Disposal will not be allowed near sensitive areas which will inconvenience the community.

- The construction camp, storage of fuel and lubricants should be avoided at the river bank. Any construction camp site will be finalized in consultation with DSC and PIU.

57. **Sources of construction materials.** Moderate amounts of gravel, sand, and cement will be required for this subproject. 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. The contractor will be required to:

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

58. It will be the construction contractor's responsibility to verify the suitability of all material sources and to obtain the approval of PIU/DSC. If additional quarries are required after construction is started, then the contractor obtains written approval of PIU.

59. **Erosion control.** Most of the impacts will occur due to excavation and earth movements during construction phase. Prior to commencement of civil works, the contractor will be required to:

(i) Develop an erosion control and re-vegetation plan to minimize soil loss and reduce sedimentation to protect water quality.
(ii) Minimize the potential for erosion by balancing cuts and fills to the extent feasible.Identify and avoid areas with unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure).
(iii) Minimize the amount of land disturbed as much as possible. Use existing roads, disturbed areas, and borrow pits and quarries when possible. Minimize vegetation removal. Stage construction to limit the exposed area at any one time

60. **Access.** Hauling of construction materials and operation of equipment on-site can cause traffic problems and conflicts in ROWs. Construction traffic will access most work areas from the existing roads therefore potential impacts will be of short-duration, localized and can be mitigated. The contractor will need to adopt the following mitigation measures:

(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 the Traffic Police Department for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours.
(vii) Notify affected sensitive receptors by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints.

61. Summary of pre-construction activities is presented in **Table 6.** The responsibilities, monitoring program and costs are provided in detail in the EMP. The contractor is required to update the information during detailed design phase. Sample waste/spoils management plan, traffic management plan, etc. are attached as Appendixes **3 & 4 & 10**

Table 6: Summary of Pre-Construction Mitigation Measures

Parameters	Mitigation Measures
Consents, permits, clearances, no objection certificate (NOC), etc.	Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works. Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. Include in detailed design drawings and documents all conditions and provisions if necessary
Erosion control	Develop an erosion control and re-vegetation plan to minimize soil loss and reduce sedimentation to protect water quality. Minimize the potential for erosion by balancing cuts and fills to the extent feasible. Identify and avoid areas with unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure). Minimize the amount of land disturbed as much as possible. Use existing roads, disturbed areas, and borrow pits and quarries when possible. Minimize vegetation removal. Stage construction to limit the exposed area at any one time.
Utilities	Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during the construction phase. Require contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services. Obtain from the PIU and/or DSC the list of affected utilities and operators; Prepare a contingency plan to include actions to be done in case of unintentional interruption of services. If relocations are necessary, contractor will coordinate with the providers to relocate the utility.
Social and Cultural Resources	Consult Archaeological Survey of India or State Department of Archaeology to obtain an expert assessment of the archaeological potential of the site. Consider alternatives if the site is found to be of medium or high risk. Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available.
Sites for construction work camps, areas for stockpile, storage and disposal	Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc. Residential areas will not be considered so as 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). Disposal will not be allowed near sensitive areas which will cause inconvenience to the community. The construction camp, storage of fuel and lubricants should be avoided at the river bank. The construction camp site for intake well should be finalized in consultation with DSC and PIU.
Sources of construction materials	Use quarry sites and sources permitted by government. Verify suitability of all material sources and obtain approval from PIU/DSC. If additional quarries are required after construction has started, obtain written approval from PIU/DSC. Submit to DSC on a monthly basis documentation of sources of materials.
Access	Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. Schedule transport and hauling activities during non-peak hours. Locate entry and exit points in areas where there is low potential for traffic congestion. Keep the site free from all unnecessary obstructions. Drive vehicles in a considerate manner. Coordinate with the Traffic Police Department for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours. Notify affected sensitive receptors by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints. Provide free access to households and businesses/shops along ROWs during the construction phase.

C. Anticipated Construction Impacts and Mitigation Measures

62. The impacts during the proposed construction works are generic to the construction activities and not expected to be significant. The EMP specifies the necessary mitigation measures to be strictly followed by the contractor and supervised by the DSC. Key impacts during construction are envisaged on the following aspects: (i) transportation of materials, (ii) dust generation, air and noise pollution from construction activities, (iii) handling of construction materials at site and, (iv) adoption of safety measures during construction.

63. **Construction Schedule and Method.** As per preliminary design, construction activities will cover approximately 2 years. The exact implementation schedule will be updated during detailed design phase and will be reflected in this IEE.

64. The infrastructures will be constructed manually according to design specifications. Demolished materials will be reused to the maximum extent possible. Materials will be brought to site by trucks and will be stored on unused areas within the temple complexes and nearby vacant areas. Any excavated road will be reinstated. The working hours will be 8 hours daily, the total duration of each stage depends on the soil condition and other local features. Night works may be considered in commercial areas and high day-time traffic as per prevailing conditions at the time of construction.

65. There is sufficient space for a staging area, construction equipment, and stockpiling of materials. However, the contractor will need to remove all construction and demolition wastes on a daily basis.

66. Although construction of these project components involves quite simple techniques of civil work, the invasive nature of restoration works and the subproject sites in built-up areas where there are a variety of human activities, will result to impacts to the environment and sensitive receptors such as residents, businesses, and the community in general. These anticipated impacts are short-term, site-specific and within relatively small areas.

67. **Erosion Hazards.** The sites are in the built up area of the town therefore risk of erosion is low, limited during construction activities and not expected to have any negative impact on the drainage and hydrology of the area. However, the contractor will be require to:

(i) Save topsoil removed during excavation and use to reclaim disturbed areas, as soon as it is possible to do so.
(ii) Use dust abatement such as water spraying to minimize windblown erosion.
(iii) Provide temporary stabilization of disturbed/excavated areas that are not actively under construction.
(iv) Apply erosion controls (e.g., silt traps) along the drainage leading to the water drains.
(v) Maintain vegetative cover within unused land to prevent erosion and periodically monitor the area to assess erosion.
(vi) Clean and maintain catch basins, drainage ditches, and culverts regularly.
(vii) Conduct routine site inspections to assess the effectiveness of and the maintenance requirements for erosion and sediment control systems

68. **Impacts on Water Quality.** There are no surface water sources near the subproject site therefore impacts on water quality is negligible. Nevertheless, the contractors will be required to:

(i) Schedule civil works during non-monsoon season, to the maximum extent possible.
(ii) Ensure drainages within the construction zones are kept free of obstructions.
(iii) Keep loose soil material and stockpiles out of drains and flow-lines.
(iv) Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets.
(v) Re-use/utilize, to maximum extent possible, excavated materials.
(vi) Dispose any residuals at identified disposal site (PIU/DSC will identify approved sites).
(vii) Dispose waste oil and lubricants generated as per provisions of Hazardous Waste (Management and Handling) Rules, 1989.

69. **Impacts on Air Quality.** There is potential for increased dust particularly during summer/dry season due to various construction activities including stockpiling of construction materials. Emissions from vehicles transporting workers, construction materials and debris/materials to be disposed may cause increase in air pollutants within the construction zone. These are inherent impacts which are site-specific, low magnitude, short in duration and can be easily mitigated. The contractor will be required to:

(i) Conduct regular water spraying on earth piles, trenches and sand piles.
(ii) Conduct regular visual inspection along alignments and construction zones to ensure no excessive dust emissions.
(iii) Spreading crushed gravel over backfilled surfaces if re-surfacing of disturbed areas cannot be done immediately.
(iv) Maintain construction vehicles and obtain “pollution under control” (PUC) certificate from PSPCB.
(v) Obtain CFE and CFO for hot mix plants, crushers, diesel generators, etc., if to be used in the project.

70. **Noise and Vibration Impacts.** Most of the activities during proposed works shall be done manually and no big equipments are supposed to be used therefore no noise and vibration impacts are expected. Nevertheless the contractor will be required to:

(i) Limit construction activities near sensitive areas and other important sites to daytime only.
(ii) Plan activities in consultation with the PIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance.
(iii) Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers.
(iv) Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle’s approach.
(v) If specific noise complaints are received during construction, the contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager:
(vi) Locate stationary construction equipment as far from nearby noise-sensitive properties as possible.
(vii) Shut off idling equipment.
(viii) Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.
(ix) Notify nearby residents whenever extremely noisy work will be occurring.

(x) Follow Noise Pollution (Regulation and Control) Rules, day time ambient noise levels should not exceed 65 dB(A) in commercial areas, 55 dB(A) in residential areas, and 50 dB(A) in silence zone.
(xi) Ensure vehicles comply with Government of India noise limits for vehicles. The test method to be followed shall be IS: 3028-1998.

71. **Impacts on Flora and Fauna.** As per preliminary design, tree-cutting is not required. This will be reassessed during detailed design phase. The project components defined under the project are not covered under the Schedule of list of project activities requiring an environment clearance **under sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986** thus the subproject does not required an Environment Clearance (EC). The project has no direct and indirect impact zones and no diverse ecological biodiversity is found within project area thus no impacts on flora and fauna will be envisaged. But in general the contractor will be required to:

(i) Conduct site induction and environmental awareness.
(ii) Limit activities within the work area.
(iii) Do not remove or harm existing vegetation except required under proposed contract.
(iv) Strictly instruct workers not to cut trees for fuel wood.
(v) Replant trees in the area using minimum ratio of 2 new trees for every 1 tree cut, if any. Replacement species must be approved by District Forest Department.

72. **Impacts on Physical and Cultural Resources.** There may be inconvenience to tourists, residents, businesses, and other road users due to construction activities in the proposed complexes and slower flow of traffic in areas with narrow roads. This potential impact is site-specific, short-term and can be mitigated. The contractor will be required to:

(i) Ensure no damage to structures/properties near construction zone.
(ii) Provide walkways and metal sheets where required to maintain access of people and vehicles.
(iii) Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints.
(iv) Implement good housekeeping. Remove wastes immediately. Prohibit stockpiling of materials that may obstruct/slow down pedestrians and/or vehicle movement.
(v) Ensure workers will not use nearby/adjacent areas as toilet facility.
(vi) Coordinate with DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc.
(vii) Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.

73. **Impact due to Waste Generation.** Demolished structures will be reused to the maximum extent possible. Construction activities will produce excess excavated soils, excess construction materials, and solid wastes (such as removed concrete, wood, packaging materials, empty containers, oils, lubricants, and other similar items). These impacts are negative but short-term and reversible by mitigation measures. The contractor will need to adopt the following mitigation measures:

(i) Prepare and implement a waste management plan.
(ii) Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas.

(iii) Coordinate with Municipal Authorities for beneficial uses of demolished materials or immediately dispose to designated areas.
(iv) Recover used oil and lubricants and reuse; or remove from the sites.
(v) Avoid stockpiling and remove immediately all demolished materials, excess construction materials, and solid waste (removed concrete, wood, packaging materials, empty containers, oils, lubricants, and other similar items).
(vi) Prohibit disposal of any material or wastes (including human waste) into drainage, nallah, or watercourse.

74. **Impacts on Occupational Health and Safety**. Residential accommodation for workers is not proposed. Workers need to be mindful of occupational hazards which can arise from excavation works in high-traffic and busy areas. Exposure to work-related chemical, physical, biological and social hazard is typically intermittent and of short duration, but is likely to reoccur. Potential impacts are negative and long-term but reversible by mitigation measures. Overall, the contractor should comply with IFC EHS Guidelines on Occupational Health and Safety (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES). The contractor will be required to:

(i) 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.
(ii) Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project.
(iii) Include in H&S plan measures such as: (i) type of hazards during excavation works; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents.
(iv) Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective protection, and preventing injury to fellow workers.
(v) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps.
(vi) Provide medical insurance coverage for workers.
(vii) Secure construction zone from unauthorized intrusion and accident risks.
(viii) Provide supplies of potable drinking water.
(ix) Provide clean eating areas where workers are not exposed to hazardous or noxious substances.
(x) 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.
(xi) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas.
(xii) Ensure moving equipment is outfitted with audible back-up alarms.
(xiii) Mark and provide sign boards in the construction zone, 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.

75. **Impacts on Socio-Economic Activities.** Manpower will be required during the 24 months construction phase. This can help generate contractual employment and increase in local revenue. Thus potential impact is positive and long-term. As per preliminary design, land acquisition and closure of roads are not required. However, construction activities may impede access of residents and customers to shops. The potential impacts are negative and moderate but short-term and temporary. The contractor will need to adopt the following mitigation measures:

(i) Provide sign boards for visitors to inform nature and duration of construction works and contact numbers for concerns/complaints.

(ii) Employ to the maximum extent, local persons within the 20-km immediate area if manpower is available.

76. **Summary of Mitigation Measures during Construction. Table 7** provides summary of mitigation measures to be considered by the contractor during construction phase. The detailed mitigation measures, environmental monitoring and reporting requirements, emergency response procedures, related implementation arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators are provided in the EMP.

Table 7: Summary of Mitigation Measures during Construction Phase

Potential Impact	Mitigation Measures
Impacts on water quality	Schedule civil works during non-monsoon season, to the maximum extent possible. Ensure drainages within the construction zones are kept free of obstructions. Keep loose soil material and stockpiles out of drains and flow-lines. Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets. Re-use/utilize, to maximum extent possible, excavated materials. Dispose any residuals at identified disposal site (PIU/DSC will identify approved sites). Dispose waste oil and lubricants generated as per provisions of Hazardous Waste (Management and Handling) Rules, 1989.
Impacts on air quality	Conduct regular water spraying on earth piles, trenches and sand piles. Conduct regular visual inspection along alignments and construction zones to ensure no excessive dust emissions. Spreading crushed gravel over backfilled surfaces if re-surfacing of disturbed areas cannot be done immediately. Maintain construction vehicles and obtain “pollution under control” (PUC) certificate from PPCB. Obtain CFE and CFO for hot mix plants, crushers, diesel generators, etc., if to be used in the project.
Noise and vibrations impacts	Limit construction activities in proposed complexes and other important sites to daytime only. Plan activities in consultation with the PIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance. Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers. Avoid loud random noise from sirens, air compression, etc. Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle’s approach. If specific noise complaints are received during construction, the contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager: (i) locate stationary construction equipment as far from nearby noise-sensitive properties as possible; (ii) shut off idling equipment; (iii) reschedule construction operations to avoid periods of noise annoyance identified in the complaint; and/or (iv) notify nearby residents whenever extremely noisy work will be occurring. Follow Noise Pollution (Regulation and Control) Rules, day time ambient noise levels should not exceed 65 dB(A) in commercial areas, 55 dB(A) in residential areas, and 50 dB(A) in silence zone.[a]

Potential Impact	Mitigation Measures
	Ensure vehicles comply with Government of India noise limits for vehicles. The test method to be followed shall be IS:3028-1998.
Impacts on flora and fauna	Conduct site induction and environmental awareness. Limit activities within the work area. Do not remove or harm existing vegetation except required under proposed contract Strictly instruct workers not to cut trees for fuel wood. Replant trees in the area using minimum ratio of 2 new trees for every 1 tree cut, if any. Replacement species must be approved by District Forest Department
Impacts on physical resources	Ensure no damage to structures/properties near construction zone. Provide walkways and metal sheets where required to maintain access of people and vehicles. Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints. Implement good housekeeping. Remove wastes immediately. Prohibit stockpiling of materials that may obstruct/slow down pedestrians and/or vehicle movement. Ensure workers will not use nearby/adjacent areas as toilet facility. Coordinate with PIU/DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc. Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped immediately until such time chance finds are cleared by experts.
Impacts on waste generation	Prepare and implement a waste management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas. Coordinate with Municipal Authorities for beneficial uses of demolished materials/silts/sediments or immediately dispose to designated areas. Recover used oil and lubricants and reuse; or remove from the sites. Avoid stockpiling and remove immediately all demolished materials, excess construction materials, and solid waste (removed concrete, wood, packaging materials, empty containers, oils, lubricants, and other similar items). Prohibit disposal of any material or wastes (including human waste) into drainage, nallah, or watercourse.
Impacts on occupational health and safety	Comply with IFC EHS Guidelines on Occupational Health and Safety Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project. Include in H&S plan measures such as: (i) type of hazards during excavation works; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents. Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective protection, and preventing injury to fellow workers. Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps. Provide medical insurance coverage for workers. Secure construction zone from unauthorized intrusion and accident risks. Provide supplies of potable drinking water. Provide clean eating areas where workers are not exposed to hazardous or noxious substances. 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. Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas. Ensure moving equipment is outfitted with audible back-up alarms. Mark and provide sign boards in the construction zone, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily

Potential Impact	Mitigation Measures
	understood by workers, visitors, and the general public as appropriate.
Impacts on socio-economic activities	Provide sign boards for visitors to inform nature and duration of construction works and contact numbers for concerns/complaints. Employ at least 50% of the labor force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available. "Mobility Plan" has to be chalked out in consultation with the District Administration prior to start of work.

[a] Day time shall mean from 6.00 am to 10.00 pm. Silence zone is an area comprising not less than 100 meters around hospitals, educational institutions, courts, religious places or any other area which is declared as such by PPCB. Mixed categories of areas may be declared as one of the above mentioned categories by PPCB.

77. The construction related impacts due to proposed subproject components are generic to construction activities, and are typical of building and other construction projects. The potential impacts that are associated with construction activities can be mitigated to standard levels without difficulty through incorporation or application of the recommended mitigation measures and procedures.

D. Post-Construction Impacts and Mitigation Measures

78. Site clean-up is necessary after construction activities. The contractor will be required to:

(i) Backfill any excavation and trenches, preferably with excess excavation material generated during the construction phase.
(ii) Use removed topsoil to reclaim disturbed areas.
(iii) Re-establish the original grade and drainage pattern to the extent practicable.
(iv) Stabilize all areas of disturbed vegetation using weed-free native shrubs, grasses, and trees.
(v) Restore access roads, staging areas, and temporary work areas.
(vi) Restore roadside vegetation.
(vii) Remove all tools, equipment, barricades, signs, surplus materials, debris, and rubbish. Demolish buildings/structures not required for O&M. Dispose in designated disposal sites.
(viii) Monitor success of re-vegetation and tree re-planting. Replace all plants determined to be in an unhealthy condition.
(ix) Request in writing from PIU/DSC that construction zones have been restored.

E. Anticipated Operations and Maintenance (O&M) Impacts and Mitigation Measures

79. Impacts on environmental conditions associated with the O&M of the subproject components pertain to impacts related to increased tourists in the areas resulting to increased vehicular movement along the roads, increased demands for services, and increased solid waste generation. These impacts can be mitigated by:

(i) Increased vehicular movement along the roads - speed restrictions, provision of appropriate road signage and well located rest points for pedestrians shall minimize impacts on safety of the people
(ii) Increase demands for services – addressed through the subproject design
(iii) Increase solid waste generation – Municipal Corporation to put in place solid waste management programs.

VI. INFORMATION DISCLOSURE, CONSULTATION AND PARTICIPATION

A. ADB Disclosure Policy

80. Public consultation was undertaken as per ADB SPS requirements. All the five principles of information dissemination, information solicitation, integration, coordination and engagement into dialogue were incorporated during the task. A framework of different environmental impacts likely from the project was prepared based on opinions of all those consulted, especially at the micro level, by setting up dialogues with the local people and fishermen from whom information on site facts and prevailing conditions were collected.

81. As per ADB safeguard requirement, public consultation is to be carried out before and after impact identification. Public consultation was therefore carried out twice, once at the time of start of work with the key stakeholders particularly with wild life authorities and NGOs, and secondly to discuss mitigating measures and get concurrence of stakeholders.

B. Process for Consultation followed

82. During project preparation (June to August 2014), consultations have been held with the Department of Tourism, tourists of Amritsar and District administration, District Municipal Administration, local community representatives, tourism officers, and tourist guides/photographers regarding issues pertaining to the selection of subprojects and identification of key issues including addressing the current gaps in provision of basic services and improvement of tourist infrastructure. Records of the consultations are provided in Appendix 5. Topics/issues discussed Appendix 5 which have been addressed in the design of the subproject and in this IEE where applicable.

C. Plan for Continued Public Participation

83. To ensure continued public participation, stakeholder engagement at main stages of work during the project design and implementation is proposed. A grievance redress cell has been set up within the PIU/DSC at field office and PMU, Chandigarh office. To ensure an effective disclosure of the project proposal to the stakeholders and the community living in the vicinity of the sub-project location, information regarding grievance redress mechanism shall be published in local newspapers. This information is also made available on PHTPB website.

84. The EA will submit to ADB the following documents for disclosure on ADB's website: (i) the final IEE; (ii) a new or updated IEE and corrective action plan prepared during project implementation, if any; and (iii) the environmental monitoring reports.

85. For the benefit of the community, relevant information in the IEE (Executive Summary) will be translated in Hindi/Punjabi and made available at: (i) Office of the PMU; and, (ii) Office of PIU, Amritsar; (iii) Office of the District Commissioner, Amritsar District (iv) District/Public libraries of the Chandigarh/Amritsar towns. These copies will be made available free of cost to any person and accessible to citizens as a means to disclose the document and at the same time creating wider public awareness. On demand, the person seeking information can obtain a hard copy of the complete IEE document at the cost of photocopy from the office of the PMU/PIU, on a written request and payment for the same to the Project Director. Electronic version of the IEE will be placed in the official website of the PHTPB and the website of ADB after approval of the documents by Government and ADB. The PMU will issue notification on

the disclosure mechanism in local newspapers, ahead of the initiation of implementation of the project, providing information on the project, as well as the start date and expected completion dates etc. The notice will be issued by the PMU in local newspapers one month ahead of the implementation works.

VII. GRIEVANCE REDRESS MECHANISM

86. The affected person/aggrieved party can give their grievance verbally or in written to the local grievances committee. Grievances of affected person will first be brought to the attention of the PIU who can resolve the issue at site level. If the matter is not solved within 7 days period by the PIU, it will be brought to the Grievance Redress Committee constituted for the purpose in PIU. This GRC shall discuss the issue in its monthly meeting and resolve the issues within one month of time after receiving the grievance. If the matter is not resolved by GRC at PIU level within stipulated time, it shall be referred to GRC at PMU level by Executive Engineer of PIU.

87. GRC at PMU shall discuss the issue and try to resolve it and inform the PIU accordingly. If the matter is not resolved by the GRC at PMU level within one month of time, the aggrieved person/party can bring the matter to The Court of Law. The PIU shall keep records of all grievances received including contact details of complainant, date of receiving the complaint, nature of grievance, agreed corrective actions and the date these were affected and final outcome. The grievance redress process is shown below.

A. Composition and functions of GRC

88. Local Grievance Committee (LGC). In this LGC has worked with NGO, SHG, Line Agency, Special invitee.

89. Grievance Redress Committee (GRC) at PIU. In each PIU there shall be one GRC, which will include Project Manager (PIU), District Tourist Officer of Department of Tourism of Govt. of Punjab, Community Development Officer of PIU, nominated representative of District Magistrate and nominated representative, committee shall be headed by Project Manager (PIU). The committee will meet at least once in every month. Agenda of meeting shall be circulated to all the members and affected persons/aggrieved party along with venue, date and time; informed in written at least 7 days in advance of meeting. The matters shall remain with GRC at PIU level for one month and if grievance is not resolved within this time period, the matter shall be referred to GRC at PMU.

90. GRC within Environmental and Social Management Cell (ESMC) at PMU. There shall be one GRC in PMU. The matters not resolved by the GRC at PIU level within one month shall come under GRC at PMU. GRC at PMU will include Community Development Expert of PMU, Safeguard Specialist of PMU and Additional Project Director (APD) of PMU. The Committee shall be headed by APD of PMU. This committee shall look the matters, which are referred to and not resolved by GRC at PIU level. If the matter is not resolved by the GRC at PMU level within one month of time, the aggrieved person/party can bring the matter to The Executive Committee/State Level Empowered Committee (SLEC). Sample Grievance Redress Form is attached as Appendix 6.

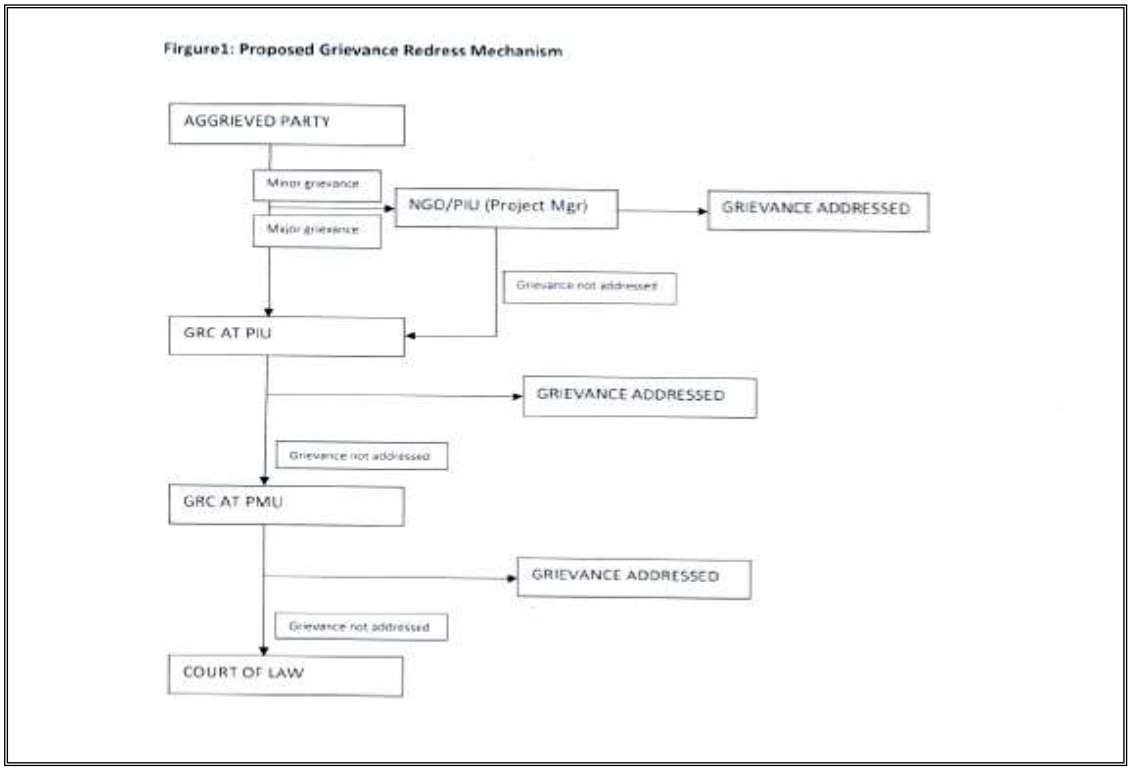
B. Approach to GRC

91. Affected person/aggrieved party can approach to GRC for redress of his/their grievances through any of the following modes:

(i) Web based: A separate corner will be developed at the program website so that public / community/ affected person can register their complaint in the online column.

(ii) Telecom based: A toll free no. Will be issued by the PMU/ PIU so that general public can register their complaint through telephone / mobile phone to the PIU/PMU office.

Figure 1: Grievance Redress Mechanism in IDIPT, Punjab



Note: LGC -NGO, SHG, Line Agency, Representative of Gram Panchayat, Special invitee GRC – PM, CDO, Engineer, DFO, DTO, SDM GRC in Environment and Social Management Cell (ESMC) –PMU (APD, SS, CDS, FS), PMC (EE, CDE).

VIII. ENVIRONMENTAL MANAGEMENT PLAN

92. The purpose of the environmental management plan (EMP) is to ensure that the activities are undertaken in a responsible, non-detrimental manner with the objectives of: (i) providing a proactive, feasible, and practical working tool to enable the measurement and monitoring of environmental performance on-site; (ii) guiding and controlling the implementation of findings and recommendations of the environmental assessment conducted for the project; (iii) detailing specific actions deemed necessary to assist in mitigating the environmental impact of the project; and (iv) ensuring that safety recommendations are complied with (Table 5).

93. A copy of the EMP must be kept on work sites at all times. This EMP will be included in the bid documents and will be further reviewed and updated during implementation. The EMP

will be made binding on all contractors operating on the site and will be included in the contractual clauses. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

94. The contractor will be required to (i) establish an operational system for managing environmental impacts (ii) carry out all of the monitoring and mitigation measures set forth in the EMP; and (iii) implement any corrective or preventative actions set out in safeguards monitoring reports that PMU and PIU will prepare from time to time to monitor implementation of this IEE and EMP. The contractor shall allocate a budget for compliance with these EMP measures, requirements and actions.

A. Implementation Arrangement

94. Responsibilities for EMP Implementation: The following agencies will be responsible for EMP Implementation:

(i) Punjab Heritage and Tourism Promotion board (Punjab). is the Executing Agency (EA) responsible for overall management, coordination, and execution of all activities funded under the loan;
(ii) PIU, Rupnagar will be the Implementing Agency (IA) responsible for coordinating procurement and construction of the project. PIU through its Project Management Unit (PMU) at Chandigarh will be implementing the project;
(iii) PMC assists PMU in managing the project including procurement and assures technical quality of design and construction;
(iv) DSC will prepare the DPR of the project and will carry out construction supervision during project implementation. Their responsibility will also include EMP implementation supervision;
(v) PIU shall be established in Rupnagar This PIU will look into progress and coordination of day to day construction works with the assistance of DSC; and
(vi) The contractor will be responsible for execution of all construction works. The contractor will work under the guidance of the PIU Amritsar and DSC. The environmental related mitigation measures will also be implemented by the contractor.

95. The contractor's conformity with contract procedures and specifications during construction will be carefully monitored by the PIU. Safeguard Specialists are deputed in PMU, PMC and DSC, who will monitor the environmental performance of contractors. Terms of References of Safeguards Specialists are given in boxes below-

Box 1: Terms of Reference of Safeguards Specialist – PMU
Review the IEE document and ensure adequacy under Safeguard Policy Statement, 2009 and identify any areas for improvement.
Ensure that the project design and specification adequately reflect the IEE, co-ordinate the obtaining of requisite environmental clearances for the project
Monitor construction activities to ensure that identified and appropriate control measures are effective and in compliance with the IEE and advise PIU for compliance with statutory requirements.
Develop training programme for the PMU/PIUs staff, the contractors and others involved in the project implementation, in collaboration with the Environmental Specialist of the PMC and DSC
Review and approve the Contractor's Implementation Plan for the environmental measures, as per IEE.
Liaise with the Contractors and Consultants on the implementation of the Environmental management measures proposed in the IEE
Liaise with the various Government agencies on environmental and other regulatory matters
Continuously interact with the NGOs and Community groups to be involved in the project
Establish dialogue with the affected communities and ensure that the environmental concerns and suggestions are

Box 1: Terms of Reference of Safeguards Specialist – PMU
incorporated and implemented in the project. Review the environmental performance of the project through an assessment of the periodic environmental monitoring reports submitted by the DSC; provide a summary of the same to the Project Director, and initiate necessary follow-up actions Provide support and assistance to the Government Agencies and the Asian Development Bank to supervise the implementation of the IEE during the construction as well as operation stage of the project Document the good practices in the project on incorporation and integration of environmental issues into engineering design and on implementing measures in the construction, and dissemination of the same

Box 2: Terms of Reference of Safeguards Specialist (Environment) of DSC
Review the IEE document and ensure adequacy under ADB SPS, 2009. Interact on a regular basis with the sector specialists of the DSC and integrate environmentally sound practices into the detailed design of project components. Advise PMU/PIU for compliance with statutory clearances. Work out the site specific mitigation measures for components as required and integrate the same into contractual provisions. Develop, organise and deliver environmental training programmes and workshops for the staff of the PIU and Contractors and in accordance to the Capacity Building Programme as specified in the IEE. Preparation of Activity Plans as identified in IEE (these include Site Management Plans, Waste Management Plans, Sludge Management and Disposal Plans, Occupational Safety Plans etc). Supervise the implementation of the Environmental provisions by the Contractors. Review and approve site specific environmental enhancement/mitigation designs worked out by the Contractor. Hold regular consultation meetings with the Environmental specialist of the PMU Review the Contractors' Environmental Implementation Plans to ensure compliance with the IEE. Develop good practice construction guidelines to assist the contractors in implementing the provisions of IEE. Prepare and submit regular environmental monitoring and implementation progress reports. Assist Environmental Specialist of the PMU to prepare good practice dissemination notes based on the experience gained from site supervision.

Box 3: Terms of Reference of Safeguards Specialist (Environment) of PMC
Support and Advice the PMU and Consultants team in- Best Environmental Practices for responding to environmental issues involved with implementation of the projects on a sustainable basis Assistance and advice on institutional strengthening and capacity building at the PMU and PIU levels in regards to environmental practices. Ensure that baseline surveys, environmental monitoring plans and programs, initial environmental examinations (IEE) as may be required are carried out. Preparation of ADB procedure compliant environmental safeguard actions including impact assessment if any during the design stage Management plan and mitigation measures Oversight of implementation of environmental standards and safeguards as part of project implementation Participate in preparation of Master Plan for additional sites and contribute to the environmental safeguards to the plan and sub components Preparation of performance monitoring reports

96. **Responsibility for updating IEE during detailed design.** DSC will be responsible for preparation of IEE and updating it time to time, when required during detailed design and implementation phase.

97. **Responsibility for monitoring.** During construction, DSC's Environmental Specialist and the designated representative engineer of the PIU will monitor the contractor's environmental performance on day to day basis while PMC expert will randomly monitor the performance for corrective measures if required. During the operation phase, monitoring will be the responsibility of the Municipal Authority and Department of Tourism.

98. **Responsibility for Reporting.** PIU in coordination with DSC will submit monthly, quarterly and semi-annually monitoring report to PMU. On the basis of it PMU will submit to

ADB semi-annual monitoring reports on implementation of the EMP and will permit ADB to field 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. PMC environmental expert will help in preparation and finalization of quarterly, semi-annual and annual progress reports. The sample environmental monitoring template is attached as Appendixes 7 to 9.

B. EMP Tables

99. Tables 8 to 10 show the potential adverse environmental impacts, proposed mitigation measures, responsible parties, and cost of implementation. This EMP will be included in the bid documents and will be further reviewed and updated during implementation.

Table 8: Pre-Construction EMP Table

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
Consents, permits, clearances, no objection certificate (NOC), etc.	• Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.	• Consents, permits, clearance, NOCs, etc.	• PMU	• EA to report to ADB in environmental monitoring report (EMR)	• check CFEs, permits, clearance, prior to start of civil works	PMU
	• Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc.	• Records and communications	• PMU	• EA to report to ADB in EMR	• Acknowledge upon receipt • Send report as specified in CFE, permits, etc.	PMU
	• Include in detailed design drawings and documents all conditions and provisions if necessary	• Detailed design documents and drawings	• Contractor	• PMU and PMC • PIU and DSC	• Upon submission by contractor	Contractor
Establishment of baseline environmental conditions prior to start of civil works	• Conduct documentation of location of components, areas for construction zone (camps, staging, storage, stockpiling, etc.) and surroundings (within direct impact zones). Include photos and GPS coordinates	• Records	• Contractor	• PMU and PMC • PIU and DSC	• to be included in updated IEE report	PMU
Utilities	• Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services	• List and maps showing utilities to be shifted • Contingency plan for services disruption	• DSC to prepare preliminary list and maps of utilities to be shifted • - During detailed design phase, contractor to (i) prepare list and	• PMU and PMC • PIU and DSC	• to be included in updated IEE report	DSC – preliminary design stage Contractor – implementation stage

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	during the construction phase. • Require contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services. • Obtain from the PIU and/or DSC the list of affected utilities and operators; • If relocations are necessary, contractor will coordinate with the providers to relocate the utility.		operators of utilities to be shifted; (ii) contingency plan			
Social and Cultural Resources	• Consult Archaeological Survey of India (ASI) or Punjab State Archaeology Department to obtain an expert assessment of the archaeological potential of the site. • Consider alternatives if the site is found to be of medium or high risk. • Include state and local archaeological, cultural and historical authorities, and interest groups in	• Chance find protocol (Annex 10)	• PMC to consult ASI or Punjab State Archaeology Department • PMC to develop protocol for chance finds	• PMU	• to be included in updated IEE report	PMC

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	consultation forums as project stakeholders so that their expertise can be made available. • Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.					
Sites for construction work camps, areas for stockpile, storage and disposal	• Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc. • Residential areas will not be considered so as 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). • Disposal will not be	• List of pre-approved sites for construction work camps, areas for stockpile, storage and disposal • Waste management plan	• DSC to prepare list of potential sites • DSC to inspect sites proposed by contractor if not included in pre-approved sites	• PMU • PIU	• to be included in updated IEE report	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	allowed near sensitive areas which will inconvenience the community. • The construction camp, storage of fuel and lubricants should be avoided at sensitive zones. The construction camp site should be finalized in consultation with DSC and PIU.					
Sources of construction materials	• Use quarry sites and sources permitted by government. • Verify suitability of all material sources and obtain approval from PIU. • If additional quarries are required after construction has started, obtain written approval from PIU. • Submit to DSC on a monthly basis documentation of sources of materials.	• Permits issued to quarries/sources of materials	• Contractor • PMC and DSC to verify sources (including permits) if additional is requested by contractor	• PMU • PIU	• Upon submission by contractor	Contractor
Access	• Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.	• Traffic management plan	• Contractor	• PIU and DSC	• to be included in updated IEE report	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	• Schedule transport and hauling activities during non-peak hours. • Locate entry and exit points in areas where there is low potential for traffic congestion. • Keep the site free from all unnecessary obstructions. • Drive vehicles in a considerate manner. • Coordinate with the Traffic Police Department for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours. • Notify affected sensitive receptors by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints.					
Occupational health and safety	• Comply with IFC EHS Guidelines on Occupational Health and Safety • Develop	• Health and safety (H&S) plan	• Contractor	• PMU and PMC • PIU and DSC	• to be included in updated IEE report	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project. • Include in H&S plan measures such as: (i) type of hazards in the construction site; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents. • Provide medical insurance coverage for workers.					

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
Public consultations	• Continue information dissemination, consultations, and involvement/participation of stakeholders during project implementation.	• Disclosure records • Consultations	• PMU and PMC • PIU and DSC • Temple administrators • Contractor	• PMU and PMC	• During updating of IEE Report • During preparation of site- and activity-specific plans as per EMP • Prior to start of construction • During construction	PMU Contractor to allocate funds to support

Table 9: EMP Table During Construction Phase

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
Impacts on water quality	•Schedule construction activities during non-monsoon season, to the maximum extent possible.	•Work schedule	•Contractor	•PIU and DSC •PIU to submit EMP monitoring report to PMU	• daily inspection by contractor supervisor and/or environment specialist •weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) •- random inspection by PMU, PIU, PMC and/or DSC	
	•Ensure drainages within the construction zones are kept free of obstructions.	•Visual inspection				
	•Keep loose soil material and stockpiles out of drains and flow-lines.	•Visual inspection				
	•Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets.	•Visual inspection				
	•Re-use/utilize, to maximum extent possible, excavated materials.	•condition in waste management plan				
	•Dispose any residuals at identified disposal site (PIU/DSC will identify approved sites).	•condition in waste management plan				
	•Dispose waste oil and lubricants generated as per provisions of Hazardous Waste (Management and Handling) Rules, 1989.	•condition in waste management plan				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	•Inspect all vehicles daily for fluid leaks before leaving the vehicle staging area, and repair any leaks before the vehicle resumes operation.	•Vehicle inspection report				
Impacts on air quality	•Conduct regular water spraying on stockpiles.	•Visual inspection •No complaints from sensitive receptors •- Records	•Contractor	•PIU and DSC	•daily inspection by contractor supervisor and/or environment specialist •weekly visual inspection by DSC (more frequent during dry season and if corrective action is required) •- random inspection by PMU, PIU, PMC and/or DSC	Contractor
	•Conduct regular visual inspection in the construction zones to ensure no excessive dust emissions.	•Visual inspection				
	•Maintain construction vehicles and obtain "pollution under control" certificate from PPCB.	•PUC certificates				
	•Obtain CFE and CFO for hot mix plants, crushers, diesel generators, etc., if to be used in the project.	•CTE and CTO				
Noise and vibrations impacts	•Limit construction activities in proposed complexes and other important areas to daytime only. •Plan activities in consultation with PIU/DSC so that activities with the greatest potential to	•Work schedule	•Contractor	•PIU and DSC	•daily inspection by contractor supervisor and/or environment specialist •weekly visual inspection by DSC (more frequent during noise-generating activities and if corrective action is	Contractors

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	generate noise are conducted during periods of the day which will result in least disturbance.				required) •- random inspection by PMU, PIU, PMC and/or DSC	
	•Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers.	•Report on ambient noise level monitoring within direct impact zones				
	•Avoid loud random noise from sirens, air compression, etc.	•zero incidence				
	•Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach.	•feedback from receptors within direct and direct impact zone				
	•If specific noise complaints are received during construction, the contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager: •Locate stationary construction equipment as far from nearby noise-sensitive properties, such as the hospital,	•Complaints addressed satisfactory •- GRM records				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	as possible. •Shut off idling equipment. •Reschedule construction operations to avoid periods of noise annoyance identified in the complaint. •Notify nearby residents whenever extremely noisy work will be occurring.					
Impacts on flora and fauna	•Conduct site induction and environmental awareness. •Strictly instruct workers not to cut trees for fuel wood •Do not harm existing vegetation in the area except indicated in site plan	•Records	•Contractor	•PIU and DSC	•daily inspection by contractor supervisor and/or environment specialist •weekly visual inspection by DSC (more frequent if corrective action is required) •- random inspection by PMU, PIU, PMC and/or DSC	Contractor
	•Limit activities within the work area.	•Barricades along excavation works				
	•Replant trees in the area using minimum ratio of 2 new trees for every 1 tree cut. Replacement species must be approved by district Forest Department.	•-Number and species approved by Punjab State Forest Department •				
Impacts on physical cultural resources	•Ensure no damage to structures/properties adjacent to construction zone.	•Visual inspection •- any impact should be addressed by project resettlement plan	•Contractor • •In coordination with PIU and DSC for any structures within WTP site and construction	•PIU and DSC	•daily inspection by contractor supervisor and/or environment specialist •weekly visual inspection by DSC	Contractor
	•Provide sign boards	•no complaints				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	to inform nature and duration of construction works and contact numbers for concerns/complaints.	received •photo-documentation	zone		(more frequent if corrective action is required) •- random inspection by PMU, PIU, PMC and/or DSC	
	•Implement good housekeeping. Remove wastes immediately.	•Visual inspection •No stockpiled/ stored wastes				
	•Ensure workers will not use nearby/adjacent areas as toilet facility.	•No complaints received •Sanitation facilities for use of workers				
	•Coordinate with PIU/DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc. •Ensure heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.	• Approved routes in traffic management plan				
	•Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped	•condition in chance find protocol (Annex 10), prepared by Cultural Heritage Conservation Specialist (CHCS) intl. PMC, Thomas				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	immediately until such time chance finds are cleared by experts.	Addyman (Simpson and Brown Architects, Edinburg.				
Impact due to waste generation	•Prepare and implement a waste management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas. •Coordinate with PIU/DSC for beneficial uses of excavated soils or immediately dispose to designated areas. •Recover used oil and lubricants and reuse; or remove from the site. •Avoid stockpiling and remove immediately all excavated soils, excess construction materials, and solid waste (remove concrete, wood, packaging materials, empty containers, oils, lubricants, and other similar items). •Prohibit disposal of any material or wastes (including	•condition in waste management plan	Contractor	•PIU and DSC	•daily inspection by contractor supervisor and/or environment specialist •weekly visual inspection by DSC (more frequent if corrective action is required) •- random inspection by PMU, PIU, PMC and/or DSC	Contractor

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	human waste) into drainage, nallah, or watercourse.					
Impacts on occupational health and safety	•Comply with IFC EHS Guidelines on Occupational Health and Safety	•Visual inspection •- Records	Contractor	•PIU and DSC	•daily inspection by contractor supervisor and/or environment specialist •weekly visual inspection by DSC (more frequent if corrective action is required) •- random inspection by PMU, PIU, PMC and/or DSC	Contractor
	•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.	•Visual inspection •Work schedule •Noise level monitoring in work area				
	•Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective equipment, and preventing injury to fellow workers.	•Records • Condition in H&S plan				
	•Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps.	•Visible first aid equipment and medical supplies •- Condition in H&S plan				
	•Provide medical insurance coverage for workers.	•Records				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	•Secure construction zone from unauthorized intrusion and accident risks.	•Area secured - Trenches barricaded				
	•Provide supplies of potable drinking water.	- Supply of water				
	•Provide clean eating areas where workers are not exposed to hazardous or noxious substances.	- Workers area				
	•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.	•Records •Condition in H&S plan				
	•Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas.	•Visual inspection •Condition in H&S plan				
	•Ensure moving equipment is outfitted with audible back-up	•Construction vehicles • Condition in H&S plan				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	alarms.					
	•Mark and provide sign boards in the construction zone, 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.	•Visible and understandable sign boards in construction zone • H&S plan includes appropriate signs for each hazard present				
Impacts on socio-economic activities	•Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	•Visible and understandable sign boards in construction zone	Contractor	•PIU and DSC	•daily inspection by contractor supervisor - weekly visual inspection by DSC (more frequent if corrective action is required) •- random inspection by PMU, PIU, PMC	Contractor
	•Employ to the maximum extent, local persons within the 20-km immediate area if manpower is available.	•Employment records				

Table 10: EMP Table During Post-Construction Phase

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
• Solid waste (debris, excavated soils, etc.)	• Backfill any excavation and trenches, preferably with excess excavation material generated during the construction phase. • Use removed topsoil to reclaim disturbed areas. • Re-establish the original grade and drainage pattern to the extent practicable. • Stabilize all areas of disturbed vegetation using weed-free native shrubs, grasses, and trees. • Restore access roads, staging areas, and temporary work areas. • Restore roadside vegetation, if removed • Remove all tools, equipment, barricades, signs, surplus materials, debris, and rubbish. Demolish buildings/structures not required for O&M. Dispose in designated disposal sites. • Monitor success of re-vegetation and tree re-planting. Replace all plants determined to be in an unhealthy condition. • Request in writing from PIU/DSC that construction zones have been restored.	• Pre-existing condition • Construction zone has been restored	• Contractor	• PIU and DSC • PIU to submit EMP monitoring report to PMU	- visual inspection by contractor supervisor and/or environment specialist	• Contractor

C. Summary of Site and Activity-Specific Plans as per EMP

100. Table 11 summarizes site and activity-specific plans to be prepared as per EMP tables.

Table 11: Site- and Activity-Specific Plans/Programs as per EMP

To be Prepared During	Specific Plan/Program	Purpose	Responsible for Preparation	Responsible for Implementation
Detailed Design Phase	Environmental monitoring program as per detailed design	Indicate sampling locations, methodology and parameters	PMC/DSC	Contractor
Detailed Design Phase	Erosion control and re-vegetation plan	Mitigate impacts due to erosion	PMC/DSC	Contractor
Detailed Design Phase	List and maps showing utilities to be shifted	Utilities shifting	IPIU/DSC during preliminary stage Contractor as per detailed design	Contractor
Detailed Design Phase	Contingency plan	Mitigate impacts due to interruption of services during utilities shifting	Contractor	Contractor
Detailed Design Phase	Chance find protocol	Address archaeological or historical finds	PMU and PMC	Contractor
Detailed Design Phase	List of pre-approved sites	Location/s for work camps, areas for stockpile, storage and disposal	PIU and DSC	Contractor
Detailed Design Phase	Waste management plan	Mitigate impacts due to waste generation	Contractor	Contractor
Detailed Design Phase	Traffic management plan	Mitigate impacts due to transport of materials and pipe laying works	Contractor	Contractor
Detailed Design Phase	H&S plan	Occupational health and safety	Contractor	Contractor

D. Environmental Monitoring Program

101. Through integration of mitigation measures in project design, impacts are mostly insignificant, temporary in nature and can be properly avoided or mitigated by following proposed mitigation measures given in the EMP of this IEE report.

102. Table 12 provides the indicative environmental monitoring program which includes relevant environmental parameters, with a description of the sampling stations, frequency of monitoring, applicable standards, and responsibility. This will be updated during detailed design to ensure EMP and monitoring program is commensurate to the impacts of the subproject.

Table 12: Indicative Environmental Monitoring Program[2]

	Field	Phase	Parameters	Location	Frequency	Responsibility
1.	Air quality	Detailed design phase to establish baseline	Particulate matter	At each of the project sites.	24 hours (once)	PMU
		Construction	Particulate matter	At each of the project sites.	24 hours (six monthly except mansoon season)	Contractor

[2] As per discussions during FFM, no Environment Monitoring is required during Operation and Management of the buildings/ assets under the project.

	Field	Phase	Parameters	Location	Frequency	Responsibility
2.	Noise	Detailed design phase to establish baseline	Day time dB(A)	At each of the project sites.	Once before construction	Contractor
		Construction	Day time dB(A)	At each of the project sites.	During noise-generating activities	Contractor

E. Capacity Building

103. The Environmental Specialist of the DSC will provide the basic training required for environmental awareness followed by specific aspects of Infrastructure Improvement Projects along with Environmental implications for projects. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Programme and the requirements of the project. The entire training would cover basic principles of environmental assessment and management; mitigation plans and programmes, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in Table 13 below. This training program is intended for the entire destination and is not just specific to this package.

Table 13: Training Modules for Environmental Management (common for entire project)

Program	Description	Participants	Form of Training	Duration/ Location	Training Conducting Agency
A. Pre-Construction Stage					
Sensitization Workshop	Introduction to Environment: Basic Concept of environment Environmental Regulations and Statutory requirements as per Govt. of India and ADB	Tourism / Forest / Roads / Culture Department Officials, Project Director (PD) and Environmental Specialist (ES) of the PMU/PIU	Workshop	½ Working Day	Environmental Specialist of the PMC and DSC
B. Construction Stage					
Module 1	Roles and Responsibilities of officials / contractors / consultants towards protection of environment Implementation Arrangements	Engineers and staff of line depts. of GoPunjab, and PMU/PIU (including the ES)	Lecture / Interactive Sessions	½ Working Day	Safeguards Specialist of the PMC and DSC
Module 2	Monitoring and Reporting System	Engineers and staff of implementing agencies and PMU/ PIU (including ES)	Lecture / Interactive Sessions	½ Working Day	Safeguards Specialist of the PMC and DSC

F. EMP Implementation Cost

104. As part of good engineering practices in the project, there have been several measures as safety, signage, dust suppression, procurement of personal protective equipment, provision of drains, etc. and the costs for which will be included in the design costs of specific subprojects. Therefore, these items of costs have not been included in the IEE budget. Only those items not covered under budgets for construction are considered in the IEE budget.

105. This is a small construction project and it is not expected to cause much significant air, water and noise pollution. The main EMP cost will arise from monitoring of environmental parameters (air, water and noise) and training.

106. The costs of water sprinkling for dust suppression and providing personal protective equipment's to construction workers shall borne by contractor as part of conditions of contract. In addition the sources of funds for Mitigation measures during construction stage including monitoring during construction stage are also to be borne by the contractor. These are deemed to be included as part of the contract price amount quoted by the contractor for the works. The costs of components for monitoring in operation stage and the capacity building costs are to be funded by the PMU. The EMP cost is given in the Table 14 below.

Table 14: Indicative EMP Budget[3]

S.N.	Particulars	Stages	Unit	Total number	Rate (INR)	Cost (INR)	Source of fund
A. Monitoring Measures							
1	Air quality monitoring	Detailed design	Per sample	1	10,000	10,000	PMU
2	Noise Levels	Detailed design	Per location	1	4,000	4,000	PMU
3	Ambient Air Quality	Construction	Per Sample	4	10,000	40,000	Contractor budget
4	Ambient Noise Quality	Construction	Per Sample	4	4,000	16,000	Contractor budget
Sub- Total (A)						**70,000**	
B.	**Capacity Building – Training cost**						
1	Sensitization Workshop	Pre-Construction	L.S			1,50,000	PMU
2	Training Session I	Construction	L.S			1,50,000	PMU
3	Training Session II	Construction	L.S			1,50,000	PMU
Sub -Total (B)						4,50,000	
Total (A+B) INR						**5,20,000**	

IX. FINDINGS AND RECOMMENDATIONS

107. The proposed components as part of the package are in line with the sub-project selection criteria for the program. The subproject conforms to all GoI and ADB regulations, policies, and standards including all necessary government permits and clearances

108. The specific management measures laid down in the IEE will effectively address any adverse environmental impacts due to the sub-project. The effective implementation of the measures proposed will be ensured through the building up of capacity towards environmental management within the PMU supplemented with the technical expertise of a Safeguards Specialist as part of the DSC Consultants. Further, the environmental monitoring plans provide adequate opportunity towards course correction to address any residual impacts during construction or operation stages.

[3] O&M is not expected to cause significant air, water and noise pollution there monitoring will be conducted through visual inspection and costs will be included as part of O&M activities of asset owner.

X. CONCLUSIONS

109. The IEE carried out for the sub-project show that the proposed sub-components will result in net environmental benefits, and that any adverse environmental impact can be addressed through proper location, planning and design of the proposed sub-project; control of construction activity and mitigation measures. The EMP provides for mitigation of all identified impacts and the Contract clauses for the environmental provisions will be part of the civil works contracts. Further, the proposed designs have been consulted with the stakeholders and no significant issues requiring redress in terms of environmental safeguards are known to exist at present.

110. Based on the findings of the IEE, there are no significant impacts and the classification of the subproject as Category “B” is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS (2009).

APPENDIX 1: RAPID ENVIRONMENTAL ASSESSMENT (REA) CHECKLIST

Instructions:

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

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

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

Country/Project Title: IDIPT – Punjab: State level Tourism development of Interpretative trails and circuits through provision of Tourist Reception/ Information Centres and Signage at Ropar, Chandigarh, and Kapurthala

Sector Division: SARD (Urban Development and Water Division

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area adjacent to or within any of the following areas:			
▪ Underground utilities		✓	
▪ Cultural heritage site	✓		All subproject locations are in the vicinity of culturally significant sites.
▪ Protected Area		✓	
▪ Wetland		✓	
▪ Mangrove		✓	
▪ Estuarine		✓	
▪ Buffer zone of protected area		✓	
▪ Special area for protecting biodiversity		✓	
▪ Bay		✓	
B. Potential Environmental Impacts Will the Project cause…			
▪ Encroachment on historical/cultural areas?		✓	
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	The proposed interventions are planned to be developed in the identified sites and existing buildings only after detailed stakeholder consultations and concerned departments.
▪ Impacts on the sustainability of associated sanitation and solid waste disposal systems?		✓	During construction only demolition waste and excavated soil is expected as solid waste which shall be disposed as per approved EMP.
▪ Dislocation or involuntary resettlement of people?		✓	
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	
▪ Accident risks associated with increased vehicular traffic, leading to loss of life?		✓	
▪ Increased noise and air pollution resulting from increased traffic volume?		✓	

Screening Questions	Yes	No	Remarks
▪ Occupational and community health and safety risks?		✓	
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?		✓	
▪ Generation of dust in sensitive areas during construction?		✓	Small scale construction activity, does not have any impact to the surroundings.
▪ Requirements for disposal of fill, excavation, and/or spoil materials?		✓	The proposed improvement consists of minor construction works. Hence only minimal disposal of spoil materials are anticipated.
▪ Noise and vibration due to blasting and other civil works?		✓	No major noise and vibration issues are involved as civil works do not involve any blasting activity.
▪ Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction?		✓	Only small sites for subprojects, storm water management will be implemented at site.
▪ Long-term impacts on local hydrology as a result of building hard surfaces in or near the building?		✓	Pervious / semi-pervious materials would be used to avoid concretization / hard surfaces to impact local hydrology.
▪ Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	Local labour can handle the works involved.
▪ Social conflicts if workers from other regions or countries are hired?		✓	Local labour can handle the works involved.
▪ Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?		✓	All Building Safety Rules and Byelaws will be incorporated in DPR and followed by the contractors to ensure no risk situation.
▪ Risks to community health and safety caused by management and disposal of waste?		✓	All the works shall be carried out within the project site premises therefore no risk to community health and safety is expected.
▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		✓	All the works shall be carried out within the project site premises therefore no risk to community health and safety is expected. All safeguards will be implemented as per EMP to avoid any risks to community safety.

A CHECKLIST FOR PRELIMINARY CLIMATE RISK SCREENING

Country/Project Title: IDIPT – Punjab: State level Tourism development of Interpretative trails and circuits through provision of Tourist Reception/ Information Centres and Signage at Ropar, Chandigarh, and Kapurthala

Sector Division: SARD (Urban Development and Water Division

Screening Questions		Score	Remarks[a]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by the climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	0	The proposed sub project shall not have any impact on the climatic conditions, due to low impact construction activities and mitigation through EMP plan.
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	0	
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	The construction materials used for this project shall not have any impact on the climate change due to short term local project activities.
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?	0	Does not arise
Performance of project outputs	Would weather/climate conditions and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	0	Does not arise

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

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

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

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

Other Comments: The proposed subproject is to provide improvement to the existing tourism infrastructure available in the Maharaja Ranjit Singh's Treaty Signing Site, Rupnagar. The proposed construction, operation and maintenance of the project do not have any impact on the climatic condition.

Prepared by: Department of Tourism, Punjab

APPENDIX 2: PHOTO ILLUSTRATION

Existing TIC at Ropar

Archives Bhawan, Sector 38, Chandigarh

APPENDIX 3: SAMPLE OUTLINE OF SPOIL MANAGEMENT PLAN (SMP)

1.0 Purpose and application:

SMP is to describe how the project will manage the spoil generated and reuse related to design and construction works. This is an integral part of EMP. The objective of SMP is to reuse of spoil from works in accordance with the spoil management hierarchy outlined in this document.

2.0 Objectives of SMP:

The objectives of SMP are:

(i) To minimize spoil generation where possible
(ii) Maximize beneficial reuse of spoil from construction works in accordance with spoil management hierarchy
(iii) Mange onsite spoil handling to minimize environmental impacts on resident and other receivers
(iv) Minimize any further site contamination of land, water, soil
(v) Manage the transportation of spoil with consideration of traffic impacts and transport related emissions

3.0 Structure of SMP:

(i) Section 1: Introduction of SMP
(ii) Section 2: Legal and other requirements
(iii) Section 3: Roles and responsibilities
(iv) Section 4: Identification and assessment of spoil aspects and impacts
(v) Section 5: Spoil volumes, characteristics and minimization
(vi) Section 6: Spoil reuses opportunities, identification and assessment
(vii) Section 7: On site spoil management approach
(viii) Section 8: Spoil transportation methodology
(ix) Section 9: Monitoring, Reporting, Review, and Improvements

4.0 Aspects and Potential Impacts

The key aspects of potential impacts in relation to SMP are listed in table below

Aspects	**Potential Impacts**
Air Quality	Potential for high winds generating airborne dust from the stock piles
Sedimentation	Potential for sediment laden site runoff from spoil stockpiles and potential for spillage of spoil from truck on roads
Surface and Groundwater	Contamination of water (surface and ground water)
Noise	Associated with spoil handling and haulage and storage
Traffic	Impacts associated with spoil haulage
Land Use	Potential for spoil to be transported to a receivable site that doesn't have permission for storage/disposal
Design specifications	Limitations on opportunities to minimize spoil generation
Sustainability	Limited sites for storage, reuse opportunities

5.0 Spoil volumes, characteristics and minimization

5.1 Spoil volume calculations: Estimate the volumes of spoils produced from each of the construction sites.

5.2 Characterization of spoil: Based on the type of spoil; characterization is done (sand stone, mud mix materials, reusable materials

5.3 Adopt Spoil Reduce, Reuse Opportunities

An overview of the assessment methodology to be used is mentioned below.

(i) Consideration of likely spoil characteristics
(ii) Identification of possible reuse sites
(iii) Screening of possible reuse opportunities

5.4 Identification of possible safe disposal sites for spoil: Those spoils which can't be reuse shall be properly disposed in designated areas, such disposal areas should be identified in project locations. Such disposal areas should be safe from environmental aspects and there should be any legal and resettlement related issues. Such areas need to be identified and prior cliental approval should be obtained to use it as spoil disposal area. The local administration must be consulted and if required permission should be obtained from them.

5.5 Storage and stock piling

5.6 Transportation and haulage route

6.0 Based on the above, the contractor will prepare a SMP as an integral part of EMP and submit it to the PIU/DSC for their review and approval.

APPENDIX 4: SAMPLE TRAFFIC MANAGEMENT PLAN (TMP)

A. Principles

1. One of the prime objectives of this TMP is to ensure the safety of all the road users along the work zone, and to address the following issues:

(i) the safety of pedestrians, bicyclists, and motorists travelling through the construction zone;
(ii) protection of work crews from hazards associated with moving traffic;
(iii) mitigation of the adverse impact on road capacity and delays to the road users;
(iv) maintenance of access to adjoining properties
(v) Avoid hazards in
(vi) addressing issues that may delay the project.

B. Operating Policies for TMP

2. The following principles will help promote safe and efficient movement for all road users (motorists, bicyclists, and pedestrians, including persons with disabilities) through and around work zones while reasonably protecting workers and equipment.

(i) Make traffic safety and temporary traffic control an integral and high-priority element of every project from planning through design, construction, and maintenance.
(ii) Inhibit traffic movement as little as possible.
(iii) Provide clear and positive guidance to drivers, bicyclists, and pedestrians as they approach and travel through the temporary traffic control zone.
(iv) Inspect traffic control elements routinely, both day and night, and make modifications when necessary.
(v) Pay increased attention to roadside safety in the vicinity of temporary traffic control zones.
(vi) Train all persons that select, place, and maintain temporary traffic control devices.
(vii) Keep the public well informed.
(viii) Make appropriate accommodation for abutting property owners, residents, businesses, emergency services, railroads, commercial vehicles, and transit operations.

C. Analyze the impact due to street closure, if required

3. Apart from the capacity analysis, a final decision to close a particular street and divert the traffic should involve the following steps:

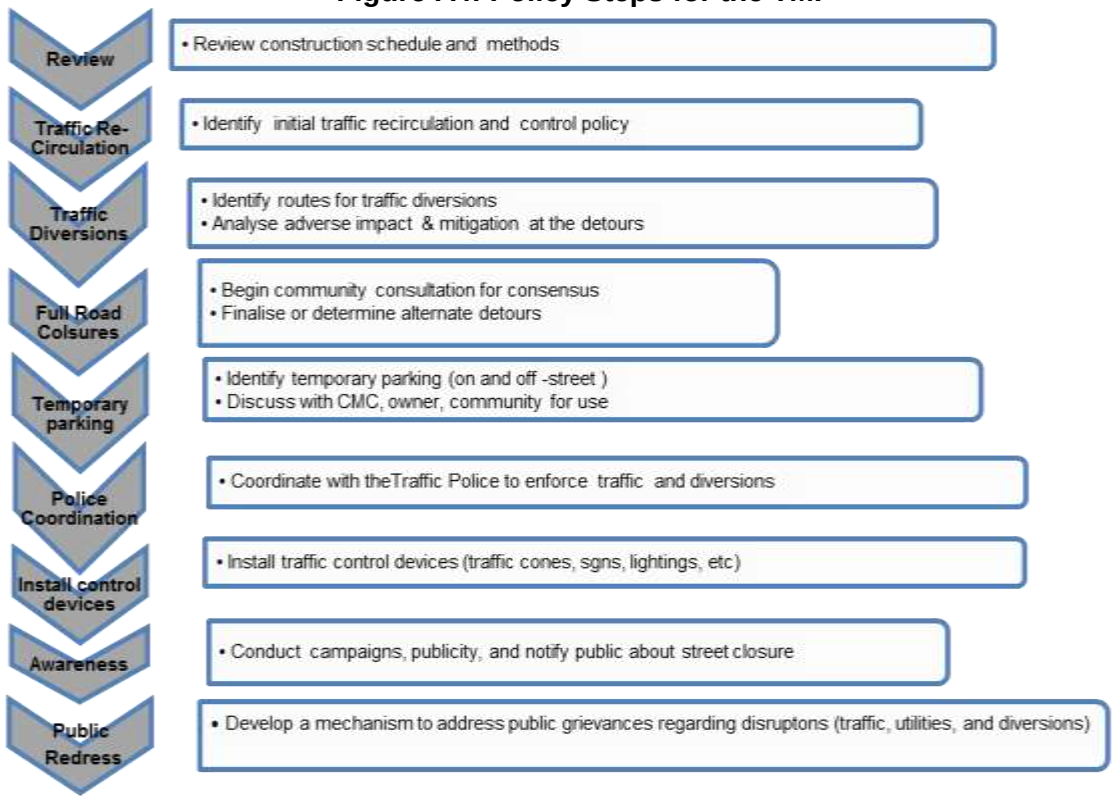
(i) approval from the PIU, local administration to use the local streets as detours;
(ii) consultation with businesses, community members, traffic police, PWD, etc, regarding the mitigation measures necessary at the detours where the road is diverted during the construction;
(iii) determining of the maximum number of days allowed for road closure, and incorporation of such provisions into the contract documents;
(iv) determining if additional traffic control or temporary improvements are needed along the detour route;
(v) considering how access will be provided to the worksite;

(vi) contacting emergency service, school officials, and transit authorities to determine if there are impacts to their operations; and

(vii) developing a notification program to the public so that the closure is not a surprise. As part of this program, the public should be advised of alternate routes that commuters can take or will have to take as result of the traffic diversion.

4. If full road-closure of certain streets within the area is not feasible due to inadequate capacity of the Detour Street or public opposition, the full closure can be restricted to weekends with the construction commencing on Saturday night and ending on Monday morning prior to the morning peak period.

Figure A4: Policy Steps for the TMP



D. Public awareness and notifications

5. As per discussions in the previous sections, there will be travel delays during the constructions, as is the case with most construction projects, albeit on a reduced scale if utilities and traffic management are properly coordinated. There are additional grounds for travel delays in the area, as most of the streets lack sufficient capacity to accommodate additional traffic from diverted traffic as a result of street closures to accommodate the works.

6. The awareness campaign and the prior notification for the public will be a continuous activity which the project will carry out to compensate for the above delays and minimize public claims as result of these problems. These activities will take place sufficiently in advance of the time when the roadblocks or traffic diversions take place at the particular streets. The reason for

this is to allow sufficient time for the public and residents to understand the changes to their travel plans. The project will notify the public about the roadblocks and traffic diversion through public notices, ward level meetings and city level meeting with the elected representatives.

7. The PIU will also conduct an awareness campaign to educate the public about the following issues:

(i) traffic control devices in place at the work zones (signs, traffic cones, barriers, etc.);
(ii) defensive driving behaviour along the work zones; and
(iii) reduced speeds enforced at the work zones and traffic diversions.

8. It may be necessary to conduct the awareness programs/campaigns on road safety during construction.

9. The campaign will cater to all types of target groups i.e. children, adults, and drivers. Therefore, these campaigns will be conducted in schools and community centers. In addition, the project will publish a brochure for public information. These brochures will be widely circulated around the area and will also be available at the PIU, and the contractor's site office. The text of the brochure should be concise to be effective, with a lot of graphics. It will serve the following purpose:

(i) explain why the brochure was prepared, along with a brief description of the project;
(ii) advise the public to expect the unexpected;
(iii) educate the public about the various traffic control devices and safety measures adopted at the work zones;
(iv) educate the public about the safe road user behaviour to emulate at the work zones;
(v) tell the public how to stay informed or where to inquire about road safety issues at the work zones (name, telephone, mobile number of the contact person; and
(vi) indicate the office hours of relevant offices.

E. Vehicle Maintenance and Safety

10. A vehicle maintenance and safety program shall be implemented by the construction contractor. The contractor should ensure that all the vehicles are in proper running condition and it comply with roadworthy and meet certification standards of GoN. All vehicles to be used at STWSSP shall be in perfect condition meeting pollution standards of GoN. The vehicle operator requires a pre state of shift checklist. Additional safety precautions will include the requirement for:

(i) Driver will follow the special code of conduct and road safety rules of Government of Nepal.
(ii) Drivers to ensure that all loads are covered and secured drivers to ensure operation equipment can’t leak materials hauled
(iii) Vehicles will be cleaned and maintained in designed places.

F. Install traffic control devices at the work zones and traffic diversion routes

11. The purpose of installing traffic control devices at the work zones is to delineate these areas to warn, inform, and direct the road users about a hazard ahead, and to protect them as well as the workers. As proper delineation is a key to achieve the above objective, it is important

to install good traffic signs at the work zones. The following traffic control devices are used in work zones:

(i) Signs
(ii) Pavement Markings
(iii) Channelizing Devices
(iv) Arrow Panels
(v) Warning Lights

12. Procedures for installing traffic control devices at any work zone vary, depending on road configuration, location of the work, construction activity, duration, traffic speed and volume, and pedestrian traffic. Work will take place along major roads, and the minor internal roads. As such, the traffic volume and road geometry vary. The main roads carry considerable traffic; internal roads in the new city areas are wide but in old city roads very narrow and carry considerable traffic. However, regardless of where the construction takes place, all the work zones should be cordoned off, and traffic shifted away at least with traffic cones, barricades, and temporary signs (temporary “STOP” and “GO”).

13. The work zone should take into consideration the space required for a buffer zone between the workers and the traffic (lateral and longitudinal) and the transition space required for delineation, as applicable. For the works, a 30 cm clearance between the traffic and the temporary STOP and GO signs should be provided. In addition, at least 60 cm is necessary to install the temporary traffic signs and cones.

14. Traffic police should regulate traffic away from the work zone and enforce the traffic diversion result from full street closure in certain areas during construction. Flaggers/ personnel should be equipped with reflective jackets at all times and have traffic control batons (preferably the LED type) for regulating the traffic during night time.

15 In addition to the delineation devices, all the construction workers should wear fluorescent safety vests and helmets in order to be visible to the motorists at all times. There should be provision for lighting beacons and illumination for night constructions.

16. The PIU and contractor will coordinate with the local administration and traffic police regarding the traffic signs, detour, and any other matters related to traffic. The contractor will prepare the traffic management plan in detail and submit it along with the EMP for the final approval.

APPENDIX 5: PUBLIC CONSULTATIONS

Public Consultations shall be done during detailed design phase and included in final IEE report

Many stakeholder consultations have been done wherein all stakeholders and line agencies have been consulted through physical visits at site by many officials of the department since 2012, the latest records are provided below:

S. No.	Date of Site Visit	Sites Visited	Name of the officials met	Issues Discussed
1	05.11.13	All Sub Project Sites of Tranche III	Owners of the site, SDM, DC office, stakeholders, community people, Panchayat members, women groups around the site.	Ownership of the assets under the site and accessibility to the sites. Development activities required at the site for its enhancement/ or adaptive reuse. Responsible agencies for the O & M of the site. Confirmation and consensus for the required interventions through the agencies. Key gender issues and requirements of the local women groups in the area. Income generating activities which can be taken up by the local community. Expected benefits of the project by the local community and the stakeholders. NoC and undertakings required for development of the site.
2	19.11.13	All Sub Project Sites of Tranche III	Regarding NoCs and undertakings	
3	20.11.13	All Sub roject Sites of Tranche III	Regarding NoCs and undertakings	
4	28.13.13	All Sub Project Sites of Tranche III	Regarding NoCs and undertakings	
5	21.05.14	Rupnagar Wetland Nangal Wetland Parking at Gurudwara Patalpuri Tranche III		
6	14.07.14	“		

APPENDIX 6: SAMPLE GRIEVANCE REDRESS FORM

(To be available in Local Language and English)

The _____Project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback. Should you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date		**Place of registration**			
Contact Information/Personal Details					
Name		**Gender**	* Male * Female	**Age**	
Home Address					
Place					
Phone no.					
E-mail					
Complaint/Suggestion/Comment/Question Please provide the details (who, what, where and how) of your grievance below: If included as attachment/note/letter, please tick here:					
How do you want us to reach you for feedback or update on your comment/grievance?					

FOR OFFICIAL USE ONLY

Registered by: (Name of Official registering grievance)	
Mode of communication: Note/Letter E-mail Verbal/Telephonic	
Reviewed by: (Names/Positions of Official(s) reviewing grievance)	
Action Taken:	
Whether Action Taken Disclosed:	Yes No
Means of Disclosure:	

APPENDIX 7: SAMPLE SEMI-ANNUAL ENVIRONMENTAL MONITORING REPORT TEMPLATE

This template must be included as an Annex in the EIA/IEE that will be prepared for the project. It can be adapted to the specific project as necessary.

INTRODUCTION

(i) Overall project description and objectives
(ii) Description of sub-projects
(iii) Environmental category of the sub-projects
(iv) Details of site personnel and/or consultants responsible for environmental monitoring
(v) Overall project and sub-project progress and status

No.	Sub-Project Name	Status of Sub-Project				List of Works	Progress of Works
		Design	Pre-Construction	Construction	Operational		
		☐	☐	☐	☐		
		☐	☐	☐	☐		
		☐	☐	☐	☐		

COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

No.	Sub-Project Name	Statutory Environmental Requirements	Status of Compliance	Action Required

COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required

COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

(i) Provide the monitoring results as per the parameters outlined in the EMP. Append supporting documents where applicable, including Environmental Site Inspection Reports.
(ii) There should be Reporting on the following items which can be incorporated in the checklist of routine Environmental Site Inspection Report followed with a summary in the semi-annual Report send to ADB. Visual assessment and review of relevant site documentation during routine site inspection needs to note and record the following:
(iii) What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;
(iv) If muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads;

(v) adequacy of type of erosion and sediment control measures installed on site, condition of erosion and sediment control measures including if these were intact following heavy rain;
(vi) Are their designated areas for concrete works, and refuelling;
(vii) Are their spill kits on site and if there are site procedure for handling emergencies;
(viii) Is there any chemical stored on site and what is the storage condition?
(ix) Is there any dewatering activities if yes, where is the water being discharged;
(x) How are the stockpiles being managed;
(xi) How is solid and liquid waste being handled on site;
(xii) Review of the complaint management system;
(xiii) Checking if there are any activities being under taken out of working hours and how that is being managed.

APPENDIX 8: SUMMARY MONITORING TABLE

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase						
Pre-Construction Phase						
Construction Phase						
Operational Phase						

Overall Compliance with CEMP/EMP

No.	Sub-Project Name	EMP/CEMP Part of Contract Documents (Y/N)	CEMP/EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed & Additional Measures Required

APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

(i) Brief description on the approach and methodology used for environmental monitoring of each sub-project

MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS (AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)

(i) Brief discussion on the basis for monitoring
(ii) Indicate type and location of environmental parameters to be monitored
(iii) Indicate the method of monitoring and equipment to be used
(iv) Provide monitoring results and an analysis of results in relation to baseline data and statutory requirements

As a minimum the results should be presented as per the tables below.

Air Quality Results

Site No.	Date of Testing	Site Location	Parameters (Government Standards)		
			PM10 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)

Site No.	Date of Testing	Site Location	Parameters (Monitoring Results)		
			PM10 (µg/m3)	SO2 (µg/m3)	NO2 (µg/m3)

Water Quality Results

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity (µS/cm)	BOD (mg/L)	TSS (mg/L	TN (mg/L)	TP (mg/L)

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity (µS/cm)	BOD (mg/L)	TSS (mg/L	TN (mg/L)	TP (mg/L)

Noise Quality Results

Site No.	Date of Testing	Site Location	LAeq (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LAeq (dBA) (Government Standard)	
			Day Time	Night Time

SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

(i) Summary of follow up time-bound actions to be taken within a set timeframe.

Annexes

(i) Photos
(ii) Summary of consultations
(iii) Copies of environmental clearances and permits
(iv) Sample of environmental site inspection Report
(v) Other

APPENDIX 9: SAMPLE ENVIRONMENTAL SITE INSPECTION REPORT

Project Name
Contract Number

NAME:_____ DATE: _____

TITLE: _____ DMA: _____

LOCATION:_____
GROUP:_____

WEATHER CONDITION:_____

INITIAL SITE CONDITION:_____

CONCLUDING SITE CONDITION:

Satisfactory _____ Unsatisfactory_____ Incident_____ Resolved _____Unresolved _____

INCIDENT:
Nature of incident:_____

Intervention Steps:_____

Incident Issues

Resolution

Project Activity Stage	Survey	
	Design	
	Implementation	
	Pre-Commissioning	
	Guarantee Period	

Inspection

Emissions	Waste Minimization
Air Quality	Reuse and Recycling
Noise pollution	Dust and Litter Control
Hazardous Substances	Trees and Vegetation

Site Restored to Original Condition Yes ☐ No ☐

Signature
_____

_____ _____
Name Position

APPENDIX 10: NO OBJECTION CERTIFICATES AND UNDERTAKING FOR OPERATION AND MAINTENANCE

Ropar TIC

NO OBJECTION CERTIFICATE

It is certified that there is no objection if the proposed project upgradation of TIC at Ropar to TRC
(name of the project)
is executed by PHTPB of the Tourism Department (Punjab) as per the guide lines of Govt. of India and ADB loan funded projects under IDIPT at TIC Ropar
(details of land/area/ building)

Place: Chandigarh
Date: 4-10-14

Signature .....
Department /owner
Director
Deptt. of Tourism
Punjab Chandigarh
(Official Stamp)

Counter Signed

Secretary Tourism
(Official Stamp)

CERTIFICATE AND UNDERTAKING

It is certified that: -

1. The Upgradation of TIC at Ropar to TRC
(details of land/area/ building)
..... Where
the TIC Ropar
(name of the project)
..... project is proposed, for execution by PHTPB of the Tourism Department (Punjab), is under the ownership of Department of Tourism, Punjab and is
(Details of the owner)
under the possession of .....
(Details of possessor)
.....

2. There is NO encroachment and NO resettlement/displacement/rehabilitation of people involved in the above Proposed Project area/building/land.

3. The proposed Project is not Partially/Fully part of any other project funded under any other scheme/programme of the State/Central Govt. or any external funding.

4. The assets created as a result of the execution of above stated project will be taken over for operation and maintenance by .....
(Name of the department/organization
.....

Place:

Date:

Signature .....

Department/Organisation/Owner

(Official Stamp) Director Deptt. of Tourism Punjab Chandigarh

R Shivaratan

Counter Signed

Secretary Tourism

(Official Stamp)

Archives Bhawan, Sector 38, Chandigarh

CERTIFICATE AND UNDERTAKING

It is certified that: -

1. The Archives Bhawan, Plot No: 3, Sector 38A Chandigarh
(details of land/area/ building)
..... Where the Development of Craft Outlet and Tourist Reception Center
(name of the project)
..... project is proposed, for execution by PHTPB of the Tourism Department (Punjab), is under the ownership of DEPARTMENT OF CULTURAL AFFAIRS, ARCHAEOLOGY AND MUSEUMS and is under the possession of DEPARTMENT OF CULTURAL AFFAIRS, ARCHAEOLOGY AND MUSEUMS.

2. There is NO encroachment and NO resettlement/displacement/rehabilitation of people involved in the above Proposed Project area/building/land.

3. The proposed Project is not Partially/Fully part of any other project funded under any other scheme/programme of the State/Central Govt. or any external funding.

4. The assets created as a result of the execution of above stated project will be taken over for operation and maintenance by DEPARTMENT OF CULTURAL AFFAIRS, ARCHAEOLOGY AND MUSEUMS

Place:

Date:

Signature .....

Department/Organisation/Owner

(Official Stamp)

Pushpa Gujral Science City

Website : www.pgsciencecity.org

Ref No. PGSC/.....

Date : 27/9/14

Annexure - I

NO OBJECTION CERTIFICATE

It is certified that there is no objection if the proposed project **Interpretation Centre and Visitor Facilities** is executed by PHTPB of the Tourism Department (Punjab) as per the guide lines of Govt. of India and ADB loan funded projects under IDIPT at **Pushpa Gujral Science City, Jalandhar-Kapurthala Road, Kapurthala** (subject to the condition that PGSC will not be responsible for payment of loan of its own funds but will be responsible to maintain the project after it is completed).

Place: Chandigarh

Signature Neelima Gerath

Date: 27/9/14

Director General

(Official Stamp)

Countersigned

Deputy Commissione.
Kapurthala

Science City Complex :- Jalandhar-Kapurthala Road, Kapurthala-144601, Punjab.
Phone:- 01822-501963/64 *Fax:-*01822-501966.

PUSHPA GUJRAL
SCIENCE CITY
(A JOINT PROJECT OF GOVT. OF INDIA & PUNJAB GOVT.)

Headquarters : S.C.O. No. 60-61, 3rd Floor
Sector 34-A, Chandigarh-160022
Phones : EPABX : 0172-5077072/73, 2603183

Fax : 0172-2612914
Email : sciencecity@hotmail.com
Website : www.pgsciencecity.org

Ref No. PGSC/.....

Date : 27/9/14

Annexure - II

CERTIFICATE AND UNDERTAKING

It is certified that:-

1. The Pushpa Gujral Science City, Jalandhar-Kapurthala Road, Kapurthala Where the Interpretation Center and Visitor facilities such as Food Court, Tourist Reception Centre, Signage and Guide Map project is proposed, for execution by PHTPB of the Tourism Department (Punjab), is under the ownership of Pushpa Gujral Science City and is under the possession of Pushpa Gujral Science City.
2. There is NO encroachment and No resettlement / displacement / rehabilitation of people involved in the above Proposed Project area / building / land.
3. The proposed project is not Partially / Fully part of any other project funded under any other scheme / programme of the State / Central Govt. or any external funding.
4. The assets created as a result of the execution of above stated project will be taken over for operation and maintenance by Pushpa Gujral Science City.

Place: Chandigarh

Signature Neelima Tekahi

Date: 27/9/14

Countersigned
Deputy Commissioner
Kapurthala

Director General

(Official Stamp)