

October 2014

**IND: Infrastructure Development Investment
Program for Tourism (IDIPT) – Punjab (State
Level Community Art and Craft Centres)**

Prepared by the Government of Punjab

This IEE is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff.

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CURRENCY EQUIVALENTS

(as of 3 September 2014)

Currency Unit – Indian rupee/s (Re/Rs)

Re1.00 = \$0.01650

\$1.00 = Rs60.61

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	–	nongovernment organization
O&M	–	operation and maintenance
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

EXECUTIVE SUMMARY

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.

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.

The subproject aims to enhance urban environment of tourist destinations with support facilities at strategic locations for community involvement and craft development for sustainable development of tourism through objective of community involvement and women empowerment. The subproject being part of Eastern and Western circuit will support the development of these circuits whilst increasing local employment opportunities and women participation. The locations identified for development of craft outlets are Mauhsari, Aam Khas Bagh, Mohindra Kothi at Patiala, Archive Building – Sector 38, Chandigarh, and Sangrur Kothi in Eastern Circuit and Town Hall in the Western Circuit.

Provision of craft outlets is part of larger strategy to offer immense opportunities to local communities to showcase and market the craft. Development of craft retail outlets will become a basis to enhance culture based tourism in state. It will result in rapid cost efficient growth, and broader cultural economic development.

Implementation arrangements

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

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:

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.

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

Categorization. The project at Sirhind, Patiala, Chandigarh, Sangrur and Amritsar is under Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015 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.

Subproject Scope. The major scope of this subproject under Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015 are:

The subproject includes following components:

- (i) Development of community craft retail outlets in Eastern Circuit
- (ii) Development of community craft retail outlets in Western Circuit

The state of Punjab is hub for many interesting arts and crafts in India. The rich traditions of Punjab handicrafts include Phulkari along with Pidhis, Jootis, Durries and Parandis. Many of the crafts are used as household items or decorative items in houses and portray the colorful identity of the state. Different types of Punjabi handicrafts which can be taken for development of craft retail outlets include :Phulkari, Mud work, Pottery, Folk Toys, Basketry, Weaving, Needle work, Leather craft, Woodwork, Metalwork etc.

The detailed design will be completed by Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015, and consequently the procurement process will be commenced.

Description of the Environment. Subproject components are located in urban areas of Sirhind, Patiala, Chandigarh, Sangrur and Amritsar. The present ecological setting of the subproject areas is in the existing buildings already identified for adaptive reuse and conservation works in the subprojects of Tranche III. There are no protected areas, wetlands, mangroves, or estuaries within or adjacent the subproject components sites of the craft retail outlets to be developed.

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.

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.

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.

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.

The local community, women craft persons, NGOs, tourists, villagers, business people (organizations) and citizens of both Eastern and Western Circuit are the major beneficiaries of the project.

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 locally produced, handmade, art and craft products of good quality at reasonable prices and further propagate the local traditions and cultural heritage of the state. This subproject will also provide a common platform for promotion of local traditions and crafts; provide and improve business opportunities for local communities/ women groups, linked to the cultural and natural heritage tourism.

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.

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.

Conclusions and Recommendations. The subproject Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015 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/T3/02/17 to be advertised by Q4/2015 is part of both Eastern and Western circuit. The objective of this project is to enhance quality of natural and cultural attractions by involving local communities for development of craft outlets in the Eastern and Western Circuits of Punjab State. The subproject being part of Eastern and Western circuit will support the development of these circuits whilst increasing local employment opportunities and women participation. It will further enable local community people to have access for artisans to showcase their innovations, sell their products and build a strong relationship with local tourism businesses by supporting and encouraging the quality craft goods at reasonable prices, thus promoting local art and craft through tourism.

5. The major scope of this subproject Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015 includes following components:

- (i) Development of community craft retail outlets in Eastern Circuit; and
- (ii) Development of community craft retail outlets in Western Circuit

The state of Punjab is hub for many interesting arts and crafts in India. The rich traditions of Punjab handicrafts include Phulkari along with Pidhis, Jootis, Durries and Parandis. Many of the crafts are used as household items or decorative items in houses and portray the colorful identity of the state. Different types of Punjabi handicrafts which can be taken for development of craft retail outlets include :Phulkari, Mud work, Pottery, Folk Toys, Basketry, Weaving, Needle work, Leather craft, Woodwork, Metalwork etc.

6. Phulkari work is popular since 15th century. It is done all over the Punjab and in adjacent state of Haryana. In most parts of state Phulkari craft is done at both household level and commercial level. Thousands of families in state are involved in making craft items for commercial and domestic market which can be promoted under strategy for sustainable tourism and community involvement.

As the traditional crafts of state are vanishing amongst the new generation due to less exposure towards the crafts sector. Therefore, sustainability of crafts and tradition is required. The government of Punjab is in the process of formulating its Cultural policy in consultation with UNESCO. The policy envisages reviving all traditional handicrafts and intangible heritage in the aim of making these traditional arts as a source of livelihood, hence this subproject will be implemented to fulfil the objective of providing better marketing opportunities and livelihood options through local crafts training and development to community people especially rural women artisans of state who contribute significantly to the production of these handicrafts. More than 50% of the artisans are women; therefore development of craft outlets will also empower women to be independent and self – sufficient.

7. Sub project components:

The locations identified for development of craft outlets are Maulsari, Aam Khas Bagh, Mohindra Kothi at Patiala, Archive Building- Sector 38, Chandigarh, and Sangrur Kothi in Eastern Circuit and Town Hall in the Western Circuit. The 5 craft centres proposed will be housed in the existing buildings.

- (i) Site Surveys and investigations.
- (ii) Assessment of need and demand for craft retail outlet as well as Common Facility Centre.
- (iii) Developing community craft retail outlets at the five identified locations
- (iv) Planning and designing of the facilities with integration of services.
- (v) Capacity building of local communities for craft promotion and tourism development, management and marketing.

8. **Maulsari, Aam Khas Bagh, Sirhind**

- (i) Maulsari at Aam Khas Bagh in Sirhind is proposed for development of craft centre to showcase the traditional crafts of district. The craft retail outlets would be located in the existing building of Maulsari. Traditional crafts such as Phulkari, embroidery, knitting, carpets etc. would be showcased at these craft centres.
- (ii) Aam Khas Bagh is situated inside Bagh-I-Hafiz Rakhna, in Sirhind, Fatehgarh Sahib District, Punjab. This is a cultural site, a part of the Moghul garden which is situated at a distance of 52 km from Chandigarh in Fatehgarh Sahib district and visited by tourists. Hence provision of tourist facility with craft, food, is considered appropriate. This was built during the reign of Akbar and further developed by Shahjahan and Jahangir. The garden complex was used as a Royal Sarai. There are a lot of historical references mentioning about this place being used by Mughal kings/ royal family. There are several

historical buildings inside the complex like Naughara, Sheesh Mahal, Hamam and Sarai Cells etc. Maulsari building is a later addition to this complex in West orchards by PHTPB to meet the demands for primary tourist facilities which are not provided for historical structures. Since 2010 this structure is lying abandoned.

9. **Mohindra Kothi at Patiala**

- (i) The craft centre in Patiala is proposed at the existing building of Mohindra Kothi. The city of Patiala is famous for its Phulkari work of embroidery and its well decorated and comfortable Juttis and carpets. The city is well connected to Delhi, Chandigarh and other cities of state. The craft centre at Patiala is proposed at Mohindra Kothi to showcase the famous crafts of Patiala such as Phulkari, carpets, knitting and Jutti making.
- (ii) The Mohindra Kothi site is situated along the Mall Road Patiala, which directly connects to National Highway 64 and is close to the Patiala Train Station (at the junction of Mall Road and NH 64). The Mohindra Kothi Complex is bounded by the Mall Road on the northwest, a service road on the northeast and another road lined by shops on the southeast. It shares its southwest boundary with the Phul Cinema, an early 20th century building designed in the Art Deco style with an Indian flavour.

10. **Sangrur Kothi**

- (i) Sangrur Kothi is part of Sangrur Palace which is a heritage site. It is situated at Banasar Bagh on Banasar Bagh road. The site comprises Temple Darbar hall and two Kothis namely Judge Kothi and the Officer's Kothi. The conservation of Darbar hall is being taken up under 13th Finance Commission and conservation of one bungalow has been taken under Ministry of Tourism. The building left out is proposed for refurbishment and development of crafts centre under Tranche 3.
- (ii) The location has been identified for development of craft centre considering the existing potential of traditional crafts in district which can be showcased to highlight the culture of state and promote its traditional goods viz-a viz community development and promoting employment opportunities. The craft centre will showcase the traditional crafts of district such as Embroidery Phulkari, Dari and Crochet works.

Figure 1: Location Plan of Sangrur Kothi



Archives Bhawan, Sector 38, Chandigarh

11. Traditional craft centre along with TIC is proposed at Chandigarh at Archive Building, Sector 38 (PHTPB Campus). The Craft centre will showcase and provide space for promotion of crafts work such as Phulkari, knitting and Dari. The objective of the subproject is to collect and show-case the crafts of Punjab, with intent to motivate and promote the traditional skills of craftsmen.

12. The city is capital of Punjab and Haryana and the Union territory of Chandigarh and has huge potential to promote rural crafts. The city is identified as a Gateway centre for Eastern circuit. Owing to its planning, rich architecture, and gardens the city attracts tourists all over the world.

Figure 2: Location Plan of Archives Bhawan- Chandigarh



Town Hall, Amritsar

13. The craft retail outlet in Amritsar is proposed at the Town Hall building. There are numerous specimens of craft work found in the city of Amritsar which shows the excellence in artistic skills of people. The region's wealth is reflected in its carved Havelis, Bagh textiles, delicately embroidered shawls, zardozi, ivory carving and inlay, lac decorated bedposts and elegant palm leaf palms. Shawls and Carpet weaving were actively promoted in Amritsar since the time of Maharaja Ranjit Singh.

14. As mentioned the building of Town Hall will house the craft outlets. Town Hall was built in 1873 by British after demolishing existing bhunga. This building is one of the finest example of British Architecture in North India with intricate details & great workmanship. It is situated within the walled city of Amritsar which represents various examples of art, architecture and culture. Currently the building is occupied by Amritsar Municipal Corporation and used as seat for city administration.

15. **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 Level Community Art and Craft Centres" 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.

16. **Purpose of the IEE.** This report gives an account of the initial environmental examination (IEE) of subproject as per Sub Appraisal of the project and preliminary design. The adverse environmental impacts for this contract package are primarily related to the soft components and minimum civil (if any)/ interior works involved. The proposed sites have been selected considering historical and cultural value of the buildings and the other allied facilities that will be provided through other sub projects of Tranche III. There will be construction impacts associated with proposed development of craft retail outlets at these locations, 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 has been carried out. This IEE provides mitigation measures for impacts related to location, design, construction, operation, and maintenance. The REA checklist is attached as Annexure- 1 with this report.

II. DESCRIPTION OF THE SUB PROJECT

17. **Location:** The proposed project sites of Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015 are located within the urban areas of the Sirhind, Patiala, Chandigarh, Sangrur and Amritsar district. The sub-project sites have been identified in the existing buildings with minimum refurbishing and interior works (for craft retail outlets) and soft components of training and development of craft skills in local community.

18. **Brief History:** All the subprojects are in Sirhind, Patiala, Chandigarh, Sangrur and Amritsar District, each of the subprojects description and the subproject activities are described below:

19. 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.

20. The locations identified for the proposed facilities experience high tourist traffic and are optimum location for craft retail outlets for considering maximum benefits to the local community/ women groups for marketing/ sale of their craft products. The fact that the TRC/TIC is proposed within the same buildings or complex of a heritage monument taken up for conservation in Tranche 3 (under Package no. is an indication of targeting the maximum number of tourists.

A. Proposed Subproject

1. Eastern Circuit

a. Maulsari, Aam Khas Bagh, Sirhind

21. Maulsari at Aam Khas Bagh in Sirhind is proposed for development of craft centre to showcase the traditional crafts of district. The craft retail outlets would be located in the existing building of Maulsari. Traditional crafts such as Phulkari, embroidery, knitting, carpets etc. would be showcased at these craft centres.

22. Aam Khas Bagh is situated inside Bagh-I-Hafiz Rakhna, in Sirhind, Fatehgarh Sahib District, Punjab. This is a cultural site, a part of the Moghul garden which is situated at a distance of 52 km from Chandigarh in Fatehgarh Sahib district and visited by tourists. Hence provision of tourist facility with craft, food, is considered appropriate. This was built during the reign of Akbar and further developed by Shahjahan and Jahangir. The garden complex was used as a Royal Sarai. There are a lot of historical references mentioning about this place being used by Mughal kings/ royal family. There are several historical buildings inside the complex like Naughara, Sheesh Mahal, Hamam and Sarai Cells etc. Maulsari building is a later addition to this complex in West orchards by PHTPB to meet the demands for primary tourist facilities which are not provided for historical structures. Since 2010 this structure is lying abandoned.

b. Mohindra Kothi at Patiala

23. The craft centre in Patiala is proposed at the existing building of Mohindra Kothi. The city of Patiala is famous for its Phulkari work of embroidery and its well decorated and

comfortable Juttis and carpets. The city is well connected to Delhi, Chandigarh and other cities of state. The craft centre at Patiala is proposed at Mohindra Kothi to showcase the famous crafts of Patiala such as Phulkari, carpets, knitting and Jutti making.

- (i) The Mohindra Kothi site is situated along the Mall Road Patiala, which directly connects to National Highway 64 and is close to the Patiala Train Station (at the junction of Mall Road and NH 64). The Mohindra Kothi Complex is bounded by the Mall Road on the northwest, a service road on the northeast and another road lined by shops on the southeast. It shares its southwest boundary with the Phul Cinema, an early 20th century building designed in the Art Deco style with an Indian flavour.

c. Sangrur Kothi

24. Sangrur Kothi is part of Sangrur Palace which is a heritage site. It is situated at Banasar Bagh on Banasar Bagh road. The site comprises Temple Darbar hall and two Kothis namely Judge Kothi and the Officer's Kothi. The conservation of Darbar hall is being taken up under 13th Finance Commission and conservation of one bungalow has been taken under Ministry of Tourism. The building left out is proposed for refurbishment and development of crafts centre under Tranche 3.

- (i) The location has been identified for development of craft centre considering the existing potential of traditional crafts in district which can be showcased to highlight the culture of state and promote its traditional goods viz-a viz community development and promoting employment opportunities. The craft centre will showcase the traditional crafts of district such as Embroidery Phulkari, Dari and Crochet works.

Figure 3: Location Plan of Sangrur Kothi



Archives Bhawan, Sector 38, Chandigarh

25. Traditional craft centre along with TIC is proposed at Chandigarh at Archive Building, Sector 38 (PHTPB Campus). The Craft centre will showcase and provide space for promotion of crafts work such as Phulkari, knitting and Dari. The objective of the subproject is to collect and show-case the crafts of Punjab, with intent to motivate and promote the traditional skills of craftsmen.

- (i) The city is capital of Punjab and Haryana and the Union territory of Chandigarh and has huge potential to promote rural crafts. The city is identified as a Gateway centre for Eastern circuit. Owing to its planning, rich architecture, and gardens the city attracts tourists all over the world.

Figure 4: Location Plan of Archives Bhawan- Chandigarh



Town Hall, Amritsar

26. The craft work in Amritsar is proposed at the Town Hall building. There are numerous specimens of craft work found in the city of Amritsar which shows the excellence in artistic skills of people. The region's wealth is reflected in its carved Havelis, Bagh textiles, delicately embroidered shawls, zardozi, ivory carving and inlay, lac decorated bedposts and elegant palm leaf palms. Shawls and Carpet weaving were actively promoted in Amritsar since the time of Maharaja Ranjit Singh.

- (i) As mentioned the building of Town Hall will house the craft outlets. Town Hall was built in 1873 by British after demolishing existing bhunga. This building is one of the finest example of British Architecture in North India with intricate details & great workmanship. It is situated within the walled city of Amritsar which represents various examples of art, architecture and culture. Currently the building is occupied by Amritsar Municipal Corporation and used as seat for city administration.

2. Existing Conditions:

a. Development of Community Craft Retail Outlets in Eastern and Western Circuits.

27. Punjab represents various art and crafts features whereas, it is difficult to locate the authentic places to source for a visitor. Artisans are predominantly scattered and located at remote sites, therefore it is essential to provide a common platform to the community for promotion of crafts.

28. There is no formal space for craft retail in the state.

29. The craft sector in state undergoes problem related to inadequate training and skill development, poor knowledge of market trends, marketing and common spaces for promotion of crafts.

Presently, individual effort is being made by artisans and is being paid very low. It is the middle man who is gaining high profit by selling the items directly to the buyers.

30. The five sites of Sirhind, Patiala, Chandigarh, Sangrur and Amritsar for subproject (Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015 is owned by Department of Tourism (DoT)/ Department of Cultural Affairs, Archaeology and Museums. 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 Annexure 10. The sites are not within any protected areas.

31. 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.

32. 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.

33. 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.

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

B. Implementation Schedule

35. Preliminary design of the subproject has been completed. The detailed design will be completed by Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015. It is estimated that construction period will cover 24 months. The subproject components are expected to be fully operational by.

36. 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

37. 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.

38. **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.

39. **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.

40. **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

41. 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.

42. The realm of environmental regulations and mandatory requirements for the proposed sub-project is shown in Table 1. 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 categories¹ - 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.

Table 1: Environmental Regulatory Compliance

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
State Level Community Art and Craft Centres a. Development of Community Craft Retail Outlets in Eastern Circuit. b. Development of Community Craft Retail Outlets 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	Consent for Establishment (CFE) and Consent for Operation (CFO) from the PPCB for setting up of diesel generators (if any) and

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.

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
	pollution) Act, 1981	batching plant will not be required due to the minimum scale of the activities which are proposed under the sub projects.
	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.

43. 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 viz. i. Site Surveys and investigations, ii. Assessment of need and demand for craft retail outlet as well as Common Facility Centre, iii. Developing community craft retail outlets at the five identified locations, iv. Planning and designing of the facilities with integration of services, v. Capacity building of local communities for craft promotion and tourism development, management and marketing; with minimal or no environmental impacts, hence the environmental profile of Patiala and Amritsar has been discussed in section IV.

44. Table 2 below shows the asset owners and details of no objection certificates (NOC) (scanned copies attached as Annexure 10).

Table 2: Status of NoCs and undertakings for the sub projects.

	Subproject Component	Asset Owner	Date of NOC/ undertaking
1.	Deewan Khana, Sangrur	Director, Department of Cultural Affairs Archaeology & Museums, /Punjab, Chandigarh.	27/08/14
2.	Development of craft outlet & TRC, Archive Bhawan Plot No. 3, Sector 38A, Chandigarh	Director, Department of Cultural Affairs Archaeology & Museums, /Punjab, Chandigarh.	Sept 2014

IV. DESCRIPTION OF ENVIRONMENT

45. The Subproject area is located in the Eastern and Western Circuit including Patiala District and Amritsar respectively. The environment profile of this district is discussed to represent the description of Eastern circuit, while Amritsar has been selected to represent the Western circuit.

1. Patiala District

46. Patiala is located in the eastern part of the Punjab state and it lies between 29°49' 30°40' North latitudes and 75° 58' 76° 48' East longitudes. Total geographical area of the district is 3720 sq.km. The Patiala district is divided into five sub-divisions (tehsils) namely Patiala, Nabha, Ghanaur, Rajpura and Samana comprising of eight-community development blocks viz. Patiala, Nabha, Sanaur, Bhunerheri, Rajpura, Ghanaur, Samana and Patran for the purpose of administration. The district headquarter, Patiala town falls in Patiala Tehsil². The physiography of the district forms a part of the Indo- Gangetic plain and consists of three types of region :

47. **The Upland Plain:** This terrain covers about 80 percent of the total area of the Patiala district. Leaving aside a small choe-infested tract in the north-east and a narrow belt running along river Ghaggar in the east, south-east and south, the whole of the district is covered by this unit. It is higher in elevation than the flood plain but is lower than the choe-infested plain. In general, its land surface is smooth.

48. **The Choe-infested Foothill Plain:** The western upland plain occupies the whole of Nabha and Samana Tehsil and north-western and western parts of Patiala Tehsil. This part of the upland plain is superimposed by sand dunes at various places. These mounds of sand, popularly known as tibas, are found in belts.

49. **The Floodplain of the Ghaggar River:** This terrain unit occupies nearly 4 per cent of the area of Patiala District. It covers eastern most part of Rajpura Tehsil. Its elevation ranges between 290 and 320 meters. A number of seasonal streams, locally known as choe traverses through this unit, which is its special feature. They originate in the Shiwalik Hills and after traversing through this region, it joins either the Ghaggar River or any of its tributaries.

50. Apart from this, the district has a complex drainage system consisting of canals and rivers. The River Ghaggar is the most important water channel of the district. It is essentially a seasonal stream, which remains dry during most part of the year. However, during the rainy session, it remains in spate often flooding the adjoining villages, causing damage to crops, livestock and at times to houses and human lives. A number of subsidiary rivulets join the Ghaggar River, the most important ones being the Tangri Nadi, Patiala-Wali Nadi, Sirhind Choe and the Jhambowali Choe. Apart from the natural drainage line, the district also has three important canals viz., Bhakra Main Line canal, the Nawana Branch, and the Ghaghar Link.

2. Climate and Rainfall

51. The climate of Patiala can be classified as subtropical with hot summer and cold winter except during monsoon season when moist air of oceanic origin reaches the area. There are four seasons in a year. The hot weather season starts from mid - March to last week of the June (Mean Maximum temperature of the city is 43.1°C (May and June) and the

² A *tehsil* or *tahsil*/*tahasil* also known as *Taluka* (or *taluk*/*taluk*) or *mandal*, is an administrative division of India, and some historical states of South Asia.

mean Minimum is 2.1°C (January) followed by the southwest monsoon, which lasts up to September. The transition period from September to November forms the post monsoon season. The winter season starts late in November and remains up to first week of March. The highest relative humidity touches 80% during July – August whereas the lowest relative humidity values of 26% are recorded during April-May. Wind velocity is maximum at 8.4 km/hr during May while it is minimum at 3.2 km/hour during September.

52. The normal monsoon and annual rainfall of the Patiala district is 547 mm and 677 mm, respectively which is unevenly distributed over a period of 29 days. The southwest monsoon sets in from last week of June and withdraws in end of September, which contributes to about 81% of annual rainfall. July and August are the wettest months. The remaining 19% rainfall is received during non-monsoon period.

3. Geology and Soil

53. The soil is deep alluvium varying from clay to silty loam. The soil is mostly heavy in texture but is light where the sand content becomes high. The soil material forms part of Indo-Gangetic plains deposited by River Ghaggar and its tributaries from the Shiwaliks and outer Himalaya. Due to arid climate, the soils are light coloured. Tropical arid brown soils exist in the major parts of the Patiala district. Here soils are deficient in nitrogen, phosphorus and potassium. In Patran and Samana blocks, soils are arid brown.

54. Geological formation consists of clay, sand, silt and gravel belt. The depth of clay varies and at places it goes down to 30 feet. At places there are large patches of 'Kallar', which have been caused mostly by impeded drainage. Kankar pans are also found in some areas. The soil in most of the area is very hard due to compaction of clay caused by trampling by grazing over the years. The penetration and percolation of the water is extremely slow in such areas. Occasional flooding of the streams during rains causes erosion of soil.

4. Surface Water Quality

55. The Subproject district does not have any perennial rivers; it is supported by the canals from the River Sutlej. The secondary information on the surface water quality collected from the Punjab State Road Sector Projects has been utilized for discussing the surface water quality of the Subproject district. The surface water sample has been collected from the canal, which traverses through the Patiala District.

Table 3: River Sutlej Surface Water Quality

Sl.no	Parameters	Canal at Sirhind – Patiala Road (28+200km)	CPCB Norms for Surface Waters
1.	Temperature (°C)	17.5	40
2.	Dissolved Oxygen(D.O.) (mg/l)	8.1	> 4
3.	pH	7.2	6.5-8.5
4.	Conductivity (µmhos/cm)	476	-
5.	Biochemical oxygen demand (B.O.D.) (mg/l)	1.6	< 3 mg/l
6.	Nitrate- N (mg/l)	1.2	-
7.	Nitrite-N (mg/l)	4.5	-
8.	Fecal Coliform (MPN/100ml)	465	< 2500
9.	Total Coliform (MPN/100ml)	1833	< 5000

Source: Environmental Impact Assessment, Punjab State Road Sector Projects

56. From the given information, the water quality of the canal is observed to be good in comparison with CPCB surface water norms. However, the presence of the Fecal and Total Coliforms indicates the canal water has been polluted due to the influx of sewage or some anthropogenic activities.

5. Groundwater Quality

57. Groundwater samples across the Patiala District has been collected and analyzed for its quality. The study has been conducted by the Central Groundwater Board (CGWB) and the outcome of the analysis has been discussed in this section. The ground water of the district is alkaline in nature. The EC in the area ranges from 687 to 4100 Micro mhos /cm. Nitrate values ranges between 0.40 to 200 mg/l and fluoride concentration ranges from 0.20 to 2.8 mg/l. At few places high fluoride and nitrate concentrations have been observed. The range of physicochemical concentration is given in the Table 4. The shallow ground water is of NaHCO₃ type and mixed faeces type of water also occurs wherever EC increases is observed within the district.

Table 4: Surface Water Quality

Sl.no	Parameters	Units	Minimum limit	Maximum limit
1	pH		7.1	8.24
2	EC Micro mhos /cm at 25°C		687	4100
3	Alkalinity	mg/l	195	810
4	CO ₃	mg/l		
5	HCO ₃	mg/l	238	988
6	Cl	mg/l	21	379
7	SO ₄	mg/l	37	1260
8	NO ₃	mg/l	0.4	200
9	F	mg/l	0.44	2.8
10	Ca	mg/l	12	130
11	Mg	mg/l	1.2	81
12	Na	mg/l	116	778
13	K	mg/l	1.4	205
14	B	mg/l	0.14	0.54
15	TH as CaCO ₃	mg/l	35	657
16	As	mg/l	0.0002	0.0022
17	Fe	mg/l	0.1	0.75
18	SAR		3	14.01
19	RSC		7.37	12.17

Source: CGWB, District Brochure

58. Groundwater is potable and fit for drinking and domestic purposes, except at few places, where high values of nitrates and fluoride is observed. The suitability of ground water for irrigation purpose is calculated by SAR and RSC values, which ranges between 3.00-14.01 and -7.37-12.17 respectively. The ground water in the area is C3 and C4 type from salinity point of view and S1 and S2 type from solidity point of view; as such ground water is fit for irrigation.

6. Ambient Noise Quality

59. Under the Punjab State Road Sector Projects, ambient air quality (AAQ) has been assessed for one of its project roads (Sirhind to Patiala road), which traverses through the Patiala district. Hence, the information given in the EIA report has been utilized to discuss the air quality of the Subproject area.

Table 5: Ambient Air Quality Monitoring – Fatehgarh Sahib

Location	SPM $\mu\text{g}/\text{m}^3$	RPM $\mu\text{g}/\text{m}^3$	SO $\mu\text{g}/\text{m}^3$	NO $\mu\text{g}/\text{m}^3$	CO mg/m^3
AAQ-1 (Near NH-1)	224	55	11	17	1.14
AAQ-2 (Jhikwali Village)	177	52	11	17	0.69
AAQ-3 (Barna)	216	53	14	20	1.07

Source: EIA Report, Punjab State Road Sector Projects

60. It is observed from the analysis that the key noxious air pollutants like Sulphur di-Oxide (SO₂) and Oxides of Nitrogen (NO_x) are well within the permissible limits set by the CPCB. However, the concentration of SPM is relatively high for residential areas in comparison with the standard. This may be due to the moving traffic and other anthropogenic activities.

7. Ambient Noise Quality

61. The information on the noise quality for the district is very limited. The secondary information on ambient noise quality has been taken from the Environmental Assessment report carried out for Punjab State Road Sector Projects (PSRSP) in Patiala district for discussion. The noise quality information is depicted in the Table 6.

Table 6: Ambient Noise Quality

Sl. No.	Location	Land use	Noise Levels dB(A)	
			Daytime	Night time
1	Junction with NH – I	Commercial	72.40	56.21
2	Jhikwali Village	Residential	70.98	52.31
3	Baran	Commercial	72.80	54.89
4	Educational Institute	Sensitive	69.95	51.11

Source: EIA Report, Punjab State Road Sector Projects

62. From the analysis it is observed that the daytime noise levels exceed the stipulated CPCB noise standards for various type of land use. The increase in the daytime noise level may be due to the movement of vehicle traffic and other commercial activities happening near the settlements. However, the night time noise levels are well within the standards.

8. Agriculture

63. Out of geographical area of 3,72,000 hectares in Patiala district, 3,03,000 hectares (81%) is cultivable. 93% of the area is irrigated through tube wells and 3% by canals. The crop density of the district is 97%. There are 62,090 agricultural families in the district. Wheat, barley, paddy, maize and sugarcane are major crops of the district. To break the wheat-paddy cycle, contract-farming has been started in the district by the Agriculture Department and PAFC for the crops like basmati, maize, pulses, barley etc. Agriculture is the main and most important economic activity in the district.

9. Ecological Resources

64. The important fauna and flora found in the site are given in the following table:

Table 7: Flora and Fauna of Patiala

Important Fauna		Important Flora	
Common name	Zoological Name	Common name	Botanical Name
Black buck	<i>Antelope cervicapra</i>	Amb	<i>Mangifera indica</i>
Blue bull	<i>Boselaphus tragocamelus</i>	Bamboo	<i>Bambusa vulgaris</i>

Important Fauna		Important Flora	
Common name	Zoological Name	Common name	Botanical Name
Chital	<i>Axis axis</i>	Beri	<i>Zizyphus mauritiana</i>
Hare	<i>Lepus nigricollis</i>	Drek	<i>Melia azadirachta</i>
Hog deer	<i>Axis porcinus</i>	Eucalyptus	<i>Eucalyptus globulus</i>
Jackal	<i>Canis auris</i>	Imli	<i>Tamarindus indica</i>
Jungle cat	<i>Felis chaus</i>	Jamun	<i>Syzygium cumini</i>
Rhesus monkey	<i>Macaca mulatta</i>	Karir	<i>Capparis aphylla</i>
Spotted owlet	<i>Athene brama</i>	Karonda	<i>Carissa karanda</i>
Wild boar	<i>Sus scrofa</i>	Khajoor	<i>Phoenix sylvestris</i>
Black partridge	<i>Melanoperdix niger</i>	Kikar	<i>Acacia Nilotica</i>
Brahminy myna	<i>Sturnia pagodarum</i>	Lasura	<i>Cordia myxa</i>
Common quail	<i>Coturnix coturnix</i>	Mesquite	<i>Prosopis juliflora</i>
Grey partridge	<i>Perdix perdix</i>	Neem	<i>Azadirachata indica</i>
Peafowl	<i>Pavo cristatus</i>	Shisham	<i>Dalbergia sissoo</i>
Rose Ringed Parakeet	<i>Psittacula krameri</i>	Teak	<i>Tectona grandis</i>

Source: Forest Department, Punjab

A. Social Profile

1. Population Distribution

65. As per Census 2011, Punjab population is 2.77 crores, which shows an increase in the population in comparison with the Census 2001 (2.44 crores). Total population of the Patiala District is 18.96 lakh in 2011 which was 16.34 lakh in 2001. However, the district population growth shows a down trend in Average Annual Growth Rate (AAGR) of nearly 1.5 percent. As per the census 2011, the total number of HH in the district is 372293. The Average Household (HH) size has been reduced from 5.6 (census 2001) to 5.1 (census 2011).

2. Urban and Rural Population

66. The urban population in Punjab during 2001 was 33.9% which has increased to 37.5% in 2011. The urban population in Patiala District is 36.4% as per 2001 census which is increased to 40.3% in 2011 census. The Table 8 below presents the Population distribution of the State and the Patiala District.

Table 8: Population Distribution – Patiala District

Population Distribution	2001		2011	
	Punjab	Patiala	Punjab	Patiala
Area (Sq.km)	50362	3325	50362	3325
Avg. HH size	5.6	5.6	5.0	5.1
Tot Population	24358999	1633879	27743338	1895686
AAGR 1991-2001-2011	1.8	1.7	1.3	1.5
Tot Urban Pop	8262511	594631	10399146	763280
Tot Rural Pop	16096488	1039248	17344192	1132406
% of Urban Population	33.9	36.4	37.5	40.3

Source: Compiled from Primary Census Abstract, 1991, 2001 and 2011

3. Population Density

67. Population Density of Punjab is 551 per sq.km in 2011. Density of Patiala is 570 per sq.km in 2011, which is higher than the value of 2001 census (491 Sq.km).

4. Sex Ratio

68. As per census 2011, the sex ratio of the state was 895 females per 1000 males. Whereas it was 874 females per 1000 males in 2001. In the Patiala District it was 891 females per 1000 males, which is higher than the 2001 figures (875 females per 1000 males).

5. Literacy Rate

69. The average literacy rate for the Patiala district is 79.4% as per 2011 census which is higher in comparison to the Punjab state average of 75.8%. The district itself has a considerable growth in the literacy rate in comparison to the 2001 census (69.3%).

6. Work participation Rate

70. As per census 2011, the Workforce Participation Rate in the Patiala district is 35 percent, which is almost similar to the Punjab state average of 36 percent. Patiala District Workforce Participation was 37 percent in 2001 which is now decreased to 35 percent.

7. Social Characteristics

71. There is no ST population in the Punjab state. The percentage of the SC in the Punjab state is 32% and the Patiala district constitutes to 25% (as per census 2011). The Table 9 below presents the Demographic status of the Punjab state and the Patiala district.

Table 9: Social Characteristic – Patiala District

Social component	2001		2011	
	Punjab	Patiala	Punjab	Patiala
Population Density	484	491	551	570
Sex Ratio	874	875	895	891
Literacy Rate	69.7	69.3	75.8	75.3
Workforce Rate (WPR)	37	37	36	35
% of SC	29	23	32	25

Source: Compiled from Primary Census Abstract, 2001& 2011

DESCRIPTION OF ENVIRONMENT

AMRITSAR

Physical Environment

1. Climate

72. The climate in the project district is characterized by general dryness except in south-west monsoon season. Winter season (November to March) with temperatures ranging from 4°C to about 16°C, and a summer season (April to July) wherein temperatures reach 45°C. The average annual rainfall in Amritsar it is about 601.5mm, with 32.7 rainy days. Dust storms occur in the month of May and June. The project area also receives dust storms and experiences very hot climate in the months of summer and very cool in the months of winter.

2. Geology & Soil

73. Amritsar District is composed of Indo-Gangetic alluvium, consisting of the alluvial sand, clay and loam. Apart from the clay used for brick-making, the concretionary form of calcium carbonate, known as kankar, is found in beds at a slight depth below the surface at the upper margin of the impermeable subsoil. A portion of rather porous soil, consisting of a mixture of lime, sand and clay, is infiltrated with water retained in it by an impermeable bottom. Amritsar is an important salt petre-producing district of the Punjab.

74. The soils of the Amritsar 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.

3. Surface water

75. Beas and Ravi rivers account for surface waters in Amritsar district. The rivers flood during the rainy season. All through the course of River Beas, 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 seasons to about 4.5 metres during the rainy seasons. The Chakki Khad is the chief tributary of the Beas in Gurdaspur district. A number of tributaries join river Ravi from both sides. On its right bank, River Ravi is joined by the Ujh, the Jalalia, the Shingarwan and the Masto, all of which rise in the Jammu hills. The Kiran and the Naumuni streams, which take their origin from local depression in Gurdaspur district, are its left bank tributaries. River Beas is about 150Km and River Ravi is about 16 Km from the proposed site. There is no surface water source near the proposed site.

4. Ambient Air and Noise Quality

76. Ambient air quality measurements in Amritsar district, as monitored by the Punjab Pollution Control Board (PPCB) within urban areas are shown in Table 10 below.

Table -10: Ambient Air Quality of Amritsar

Parameter	Amritsar	Standards		
		Residential	Commercial	Industrial
SPM ($\mu\text{g}/\text{m}^3$)	296 – 586	200	100	500
SO ₂ ($\mu\text{g}/\text{m}^3$)	10 – 19	80	30	120
NO _x ($\mu\text{g}/\text{m}^3$)	28 – 46	80	30	120

Source: Source: PPCB, Patiala

77. Ambient noise quality has been monitored by Punjab Pollution Control Board Pollution (PPCB) at various locations, indicating high noise levels largely from vehicles, especially near the Golden Temple. In Amritsar, maximum noise levels were 82 dB(A) at day and 68 dB(A) at night. Even in sensitive zones of Amritsar, 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.

78. 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

79. **Flora & Fauna.** Flora in the project area and nearby places are mostly agriculture and trees like shisham, kikar, neem, mango, Jamun, eucalyptus, shrubs and bushes etc and fauna in the project area and nearby places are mostly domesticated animals. No movements of wild life animals reported from the project site.

80. **Protected Areas.** There are no protected forests, wetlands, mangroves or estuaries in or near the subproject areas. Also there is no forest and wildlife reported within the project area.

C. Socio cultural and Economic Environment

1. Demographic profile

81. Population data of Amritsar district, as per census 2011 is shown in **Table 11** below:

Table 11: Population Data of Amritsar District

Sl. No.	Indicator	Amritsar District
1.	Total population (Nos.)	3096077
2.	% of Female population	46.68%
3.	% of urban population	39.51%
4.	Sex-ratio of total population	876
5.	% of population below 6 years of age	13.85%
6.	% of scheduled tribes	NIL
7.	Total Literacy Ratio (TLR)	67.25%
8.	Female Literacy Ratio (FLR)	61.26%
9.	Work Participation Rate (WPR)	35.92%
10.	Female WPR	16.69%
11.	% of Main workers	84.34%
12.	% of Workers in agriculture	38.43%

2. Agriculture

82. The principal kharif crops are paddy, cotton, maize and sugarcane; subsidiary crops are kharif vegetables, such as ladyfinger, cauliflower, tomato, brinjal, cucurbits, kharif pulses and fruits. The principal rabi crops are wheat, gram, barley etc. Wheat, Maize, Rice and Bajra are the important cereals of the state. Wheat dominates the production among overall crop pattern, while cotton is the major cash crop produced. Groundnut, Sugarcane and Potatoes are other crops. The principal rabi oilseeds (sarson, toramira, alsi and toria), and winter vegetables such as peas, turnip, radish, carrots, lobia.

3. Industries profile

83. The secondary and tertiary industrial sector activities are pre-dominant in Amritsar and its surrounding urban centres. 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 are agriculturists

and farmers and are dependent on farming. There are no industries near the proposed project site.

4. Physical Infrastructure Services

84. Department of Public Health and Amritsar Municipal Corporation (SMC) 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 AMC. AMC does solid waste disposal and management. Amritsar has the network of sewerage system with treatment plants.

V. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

85. 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.

86. 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 medium density 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.

87. **Land Acquisition and Resettlement and cultural Impacts.** The proposed sites of subproject Package No. PB/IDIPT/T3/02/17 to be advertised by Q4/2015 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.

88. **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

89. 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

90. **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 (iii) 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.

91. 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

92. **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; and
- (iii) Include in detailed design drawings and documents all conditions and provisions if necessary.

93. **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:
- (vi) Consult Archaeological Survey of India and/or State Department of Archaeology to obtain an expert assessment of the archaeological potential of the site.
- (vii) Consider alternatives if the site is found to be of medium or high risk.

- (viii) 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.
- (ix) 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:
- (x) Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc.
- (xi) 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).
- (xii) Disposal will not be allowed near sensitive areas which will inconvenience the community.
- (xiii) 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.

94. **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.

95. 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.

96. **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:

97. 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

98. **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.

99. Summary of pre-construction activities is presented in **Table 12**. 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 **Annexure 3 & 4 & 10**

Table 12: Summary of Pre-Construction Mitigation Measures

Parameters	Mitigation Measures
Consents, permits, clearances, no objection certificate (NOC), etc.	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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

Parameters	Mitigation Measures
	<p>amenities, and crime).</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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

100. The impacts during the proposed construction works are generic to the construction activities and not expected to be significant in this sub project, as there are either no/ or minimal civil works involved. 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.

101. **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.

102. 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.

103. 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.

104. Although construction of these project components involves quite simple techniques of civil work, interior development, refurbishing the retail outlets 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.

105. **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

106. **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.

107. **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.

108. **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.

109. **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.

110. **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.

111. 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.

112. 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.

113. 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.

114. Summary of Mitigation Measures during Construction. Table 13 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 13: Summary of Mitigation Measures during Construction Phase

Potential Impact	Mitigation Measures
Impacts on water quality	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.

Potential Impact	Mitigation Measures
	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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.³ • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Prepare and implement a waste management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in

³ 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.

Potential Impact	Mitigation Measures
generation	<p>waste management plan designated/approved disposal areas.</p> <ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 understood by workers, visitors, and the general public as appropriate.
Impacts on socio-economic activities	<ul style="list-style-type: none"> • 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.

115. 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.

b. Post-Construction Impacts and Mitigation Measures

116. 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.

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

117. 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

118. 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.

119. 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.

a. Process for Consultation followed

120. 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 Annexure-5. Topics/issues discussed Annexure 5 which have been addressed in the design of the subproject and in this IEE where applicable.

b. Plan for Continued Public Participation

121. 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.

122. 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.

123. 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

124. 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.

125. 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

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

127. **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.

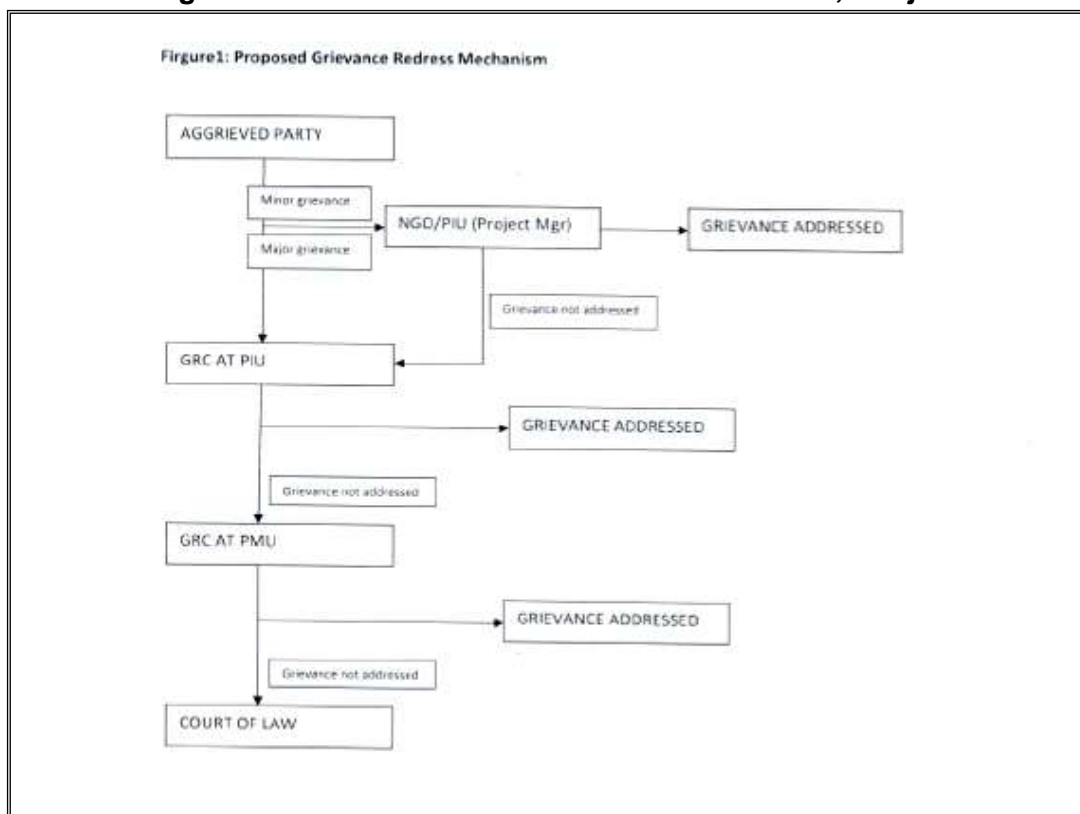
128. **GRC within Environmental and Social Management Cell (ESMC) at PMU.** There shall be one GRC in PMU. The matters not resolved by the GRC at PIU level within one month shall come under GRC at PMU. GRC at PMU will include Community Development Expert of PMU, Safeguard Specialist of PMU and Additional 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 Annexure-6.

B. Approach to GRC

129. 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 5: 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

130. 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).

131. 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.

132. 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

133. 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.

134. 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

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 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 Advise 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

Box 3: Terms of Reference of Safeguards Specialist (Environment) of PMC
--

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

135. **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.

136. **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.

137. **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 Annexure-7 to 9.

B. EMP Tables

138. Tables 14 to 15 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 14: 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 and documents 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	List and maps showing utilities to be shifted Contingency plan for	DSC to prepare preliminary list and maps of utilities to be shifted	PMU and PMC PIU and DSC	to be included in updated IEE report	DSC – preliminary design stage

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	<p>design documents to prevent unnecessary disruption of services during the construction phase.</p> <p>Require contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.</p> <p>Obtain from the PIU and/or DSC the list of affected utilities and operators;</p> <p>If relocations are necessary, contractor will coordinate with the providers to relocate the utility.</p>	services disruption	<p>- During detailed design phase, contractor to (i) prepare list and operators of utilities to be shifted; (ii) contingency plan</p>			Contractor – implementation stage
Social and Cultural Resources	<p>Consider alternatives if the site is found to be of medium or high risk.</p> <p>Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise</p>	•	•	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
	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	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
	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 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 of quarries/sources 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	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
	<p>vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites.</p> <p>Schedule transport and hauling activities during non-peak hours.</p> <p>Locate entry and exit points in areas where there is low potential for traffic congestion.</p> <p>Keep the site free from all unnecessary obstructions.</p> <p>Drive vehicles in a considerate manner.</p> <p>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.</p> <p>Notify affected sensitive receptors by providing sign boards with information about the nature and</p>					

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	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 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	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
	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.					
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 15: 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	<ul style="list-style-type: none"> • 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	• 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
	as per provisions of Hazardous Waste (Management and Handling) Rules, 1989.					
	Inspect all vehicles daily for fluid leaks before leaving the vehicle staging area, and repair any leaks before the vehicle resumes operation.	<ul style="list-style-type: none"> • Vehicle inspection report 				
Impacts on air quality	Conduct regular water spraying on stockpiles.	<ul style="list-style-type: none"> - Visual inspection - No complaints from sensitive receptors • - Records 	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • 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) <ul style="list-style-type: none"> • - random inspection by PMU, PIU, PMC and/or DSC 	Contractor
	Conduct regular visual inspection in the construction zones to ensure no excessive dust emissions.	<ul style="list-style-type: none"> • Visual inspection 				
	Maintain construction vehicles and obtain "pollution under control" certificate from PPCB.	<ul style="list-style-type: none"> • PUC certificates 				
	Obtain CFE and CFO for hot mix plants, crushers, diesel generators, etc., if to be used in the project.	<ul style="list-style-type: none"> • CTE and CTO 				
Noise and vibrations	Limit construction activities in proposed	<ul style="list-style-type: none"> • Work schedule 	<ul style="list-style-type: none"> • Contractor 	<ul style="list-style-type: none"> • PIU and DSC 	daily inspection by contractor supervisor	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
impacts	complexes and other important areas to daytime only. Plan activities in consultation with 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.				and/or environment specialist weekly visual inspection by DSC (more frequent during noise-generating activities and if corrective action is 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.	<ul style="list-style-type: none"> • Report on ambient noise level monitoring within direct impact zones 				
	Avoid loud random noise from sirens, air compression, etc.	<ul style="list-style-type: none"> • 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.	<ul style="list-style-type: none"> • feedback from receptors within direct and direct impact zone 				
	If specific noise complaints are received during construction, the	Complaints addressed satisfactory <ul style="list-style-type: none"> • -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
	<p>contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager:</p> <p>Locate stationary construction equipment as far from nearby noise-sensitive properties, such as the hospital, as possible.</p> <p>Shut off idling equipment.</p> <p>Reschedule construction operations to avoid periods of noise annoyance identified in the complaint.</p> <p>Notify nearby residents whenever extremely noisy work will be occurring.</p>					
Impacts on flora and fauna	<p>Conduct site induction and environmental awareness.</p> <p>Strictly instruct workers not to cut trees for fuel wood</p> <p>Do not harm existing vegetation in the area</p>	<ul style="list-style-type: none"> Records 	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> PIU and DSC 	<p>daily inspection by contractor supervisor and/or environment specialist</p> <p>weekly visual inspection by DSC (more frequent if corrective action is</p>	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
	except indicated in site plan				required) • - random inspection by PMU, PIU, PMC and/or DSC	
	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	<ul style="list-style-type: none"> Contractor In coordination with PIU and DSC for any structures within WTP site and construction zone 	<ul style="list-style-type: none"> 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
	Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints.	No complaints received • - photo-documentation				
	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	• - Approved routes in				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	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.	traffic management plan				
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.	<ul style="list-style-type: none"> condition in waste management plan 	<ul style="list-style-type: none"> Contractor 	<ul style="list-style-type: none"> PIU and DSC 	<p>daily inspection by contractor supervisor and/or environment specialist</p> <p>weekly visual inspection by DSC (more frequent if corrective action is required)</p> <ul style="list-style-type: none"> - 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
	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 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	<ul style="list-style-type: none"> 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	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	Visual inspection Work schedule • - Noise level monitoring in work area				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	actively.				DSC	
	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				
	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				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds to Implement Mitigation Measures
	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 <ul style="list-style-type: none"> • - 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 <ul style="list-style-type: none"> • - Condition in H&S plan 				
	Ensure moving equipment is outfitted with audible back-up alarms.	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
	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 16: 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.)	<p>Backfill any excavation and trenches, preferably with excess excavation material generated during the construction phase. Use removed topsoil to reclaim disturbed areas.</p> <p>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.</p> <p>Restore access roads, staging areas, and temporary work areas.</p> <p>Restore roadside vegetation, if removed</p> <p>Remove all tools, equipment, barricades, signs, surplus materials, debris, and rubbish. Demolish buildings/structures not required for O&M. Dispose in designated disposal sites.</p> <p>Monitor success of re-vegetation and tree re-planting. Replace all plants determined to be in an unhealthy condition.</p> <p>Request in writing from PIU/DSC that construction zones have been restored.</p>	<ul style="list-style-type: none"> • Pre-existing condition • Construction zone has been restored 	<ul style="list-style-type: none"> • Contractor 	<p>PIU and DSC</p> <ul style="list-style-type: none"> • PIU to submit EMP monitoring report to PMU 	visual inspection by contractor supervisor and/or environment specialist	<ul style="list-style-type: none"> • Contractor

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

139. Table 17 summarizes site and activity-specific plans to be prepared as per EMP tables.

Table 17: 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	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

140. 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.

141. Table 18 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 18: Indicative Environmental Monitoring Program⁴

	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 monsoon season)	Contractor
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

142. 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 19 below. This training program is intended for the entire destination and is not just specific to this package.

Table 19: 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	<ul style="list-style-type: none"> • Introduction to Environment: • Basic Concept of environment • Environmental Regulations and Statutory requirements as per Govt. of India and ADB 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Roles and Responsibilities of officials / contractors / consultants towards protection of 	<ul style="list-style-type: none"> • 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

⁴ As per discussions during FFM, no Environment Monitoring is required during Operation and Management of the buildings/ assets under the project.

Program	Description	Participants	Form of Training	Duration/ Location	Training Conducting Agency
	environment • Implementation Arrangements				
• 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

143. 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.

144. 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.

145. 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 20 below.

Table 20: Indicative EMP Budget⁵

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	5	10,000	50,000	Contractor budget
4	Ambient Noise Quality	Construction	Per Sample	5	4,000	20,000	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

⁵ 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.

IX. FINDINGS AND RECOMMENDATIONS

146. 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

147. 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.

X. CONCLUSIONS

148. 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.

149. 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).

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 Community Art and Craft Centres

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	✓		The project area is located at different project sites of Sirhind (Fatehgarh Sahib), Patiala, Sangrur, Chandigarh and Amritsar in Eastern and Western Circuit and development of craft retail outlets which will enhance showcasing and marketing the sites vis-a-vis promoting local crafts and providing employment to the local people.
▪ Protected Area		✓	The project is not in a protected area.
▪ Wetland		✓	The project sites are not in wetland area.
▪ Mangrove		✓	The project site is not in a mangrove area.
▪ Estuarine		✓	The project site is not in an estuarine.
▪ Buffer zone of protected area		✓	The project area is not in any buffer zone of protected area.
▪ Special area for protecting biodiversity		✓	The project is not in any special area for protecting biodiversity.
▪ Bay		✓	The project site is not in any bay.
B. Potential Environmental Impacts Will the Project cause...			

Screening Questions	Yes	No	Remarks
▪ Encroachment on historical/cultural areas?		✓	The proposed interventions are planned after detailed discussions/ consultations with all the stakeholders with due permissions/ NOCs and undertakings from the concerned departments hence no encroachment issues are involved. The subproject is significant in fulfilling the parallel demands of locally made craft products with increase in tourism in the state of Punjab with the implementation of different projects in all the districts under Tranche I and 3.
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?		✓	The proposed interventions are planned to be developed in the existing buildings only after detailed stakeholder consultations, hence no encroachment issues on precious ecology are involved.
▪ Impacts on the sustainability of associated sanitation and solid waste disposal systems?		✓	Adequate and comprehensive facilities will be established with provision for waste management.
▪ Dislocation or involuntary resettlement of people?		✓	There is no Dislocation or involuntary resettlement of people.
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		✓	There are no poor, women and children, Indigenous Peoples or other vulnerable groups identified in the project area which can be impacted negatively by project activities. However, the interventions have potential to give a big thrust to gender mainstreaming by providing capacity building and income generation activities/ avenues.
▪ Accident risks associated with increased vehicular traffic, leading to loss of life?		✓	There are no accident risks associated with this proposed improvements
▪ Increased noise and air pollution resulting from increased traffic volume?		✓	Does not arise
▪ Occupational and community health and safety risks?		✓	Does not arise
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?		✓	Does not arise
▪ Generation of dust in sensitive areas during construction?		✓	No civil works involved.
▪ Requirements for disposal of fill, excavation, and/or spoil materials?		✓	The proposed improvement consists of minimal reformation / furnishing/ wooden work. Hence only minimal disposal of spoil materials are anticipated, if any.
▪ Noise and vibration due to blasting and other civil works?		✓	No noise and vibration issues are involved as no large scale civil works are involved. The subproject involves development of only small retail outlets, for sale of locally made craft products to the tourists.
▪ Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction?		✓	Does not arise
▪ Long-term impacts on local hydrology as a result of building hard surfaces in or near the building?		✓	Does not arise

Screening Questions	Yes	No	Remarks
▪ Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		✓	The proposed construction works will require very minimal laborers and hence local labourer's shall be employed to the extent.
▪ Social conflicts if workers from other regions or countries are hired?		✓	The proposed renovation work will require very minimal labourer and hence local labourer's shall be employed to the maximum extent.
▪ Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?		✓	All safety measures will be incorporated as per safety Rules.
▪ Risks to community health and safety caused by management and disposal of waste?		✓	Does not arise
▪ 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?		✓	Does not arise

A CHECKLIST FOR PRELIMINARY CLIMATE RISK SCREENING

Country/Project Title: IDIPT – Punjab: State Level Community Art and Craft Centres

Sector: SARD (Urban Development and Water Division)

Subsector:

Division/Department:

Screening Questions		Score	Remarks ¹
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	0	The proposed subproject is planned in the Sirhind (Fatehgarh Sahib), Patiala, Sangrur, Chandigarh and Amritsar in Eastern and Western Circuit of Punjab. All proposed interventions are limited to construction of craft retail outlets only hence no negative climatic impacts are anticipated.
	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	Does not arise
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 minimal material is used for Art and craft outlets shall not have any impact on the climate change. All efforts will be made to utilize Environment friendly locally available materials.
	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

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

¹ 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.

Photo Illustration



Archives Bhawan, Chandigarh



Sangrur Kothi

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:

To minimize spoil generation where possible

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

3.0 Structure of SMP:

Section 1: Introduction of SMP

Section 2: Legal and other requirements

Section 3: Roles and responsibilities

Section 4: Identification and assessment of spoil aspects and impacts

Section 5: Spoil volumes, characteristics and minimization

Section 6: Spoil reuses opportunities, identification and assessment

Section 7: On site spoil management approach

Section 8: Spoil transportation methodology

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.

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.

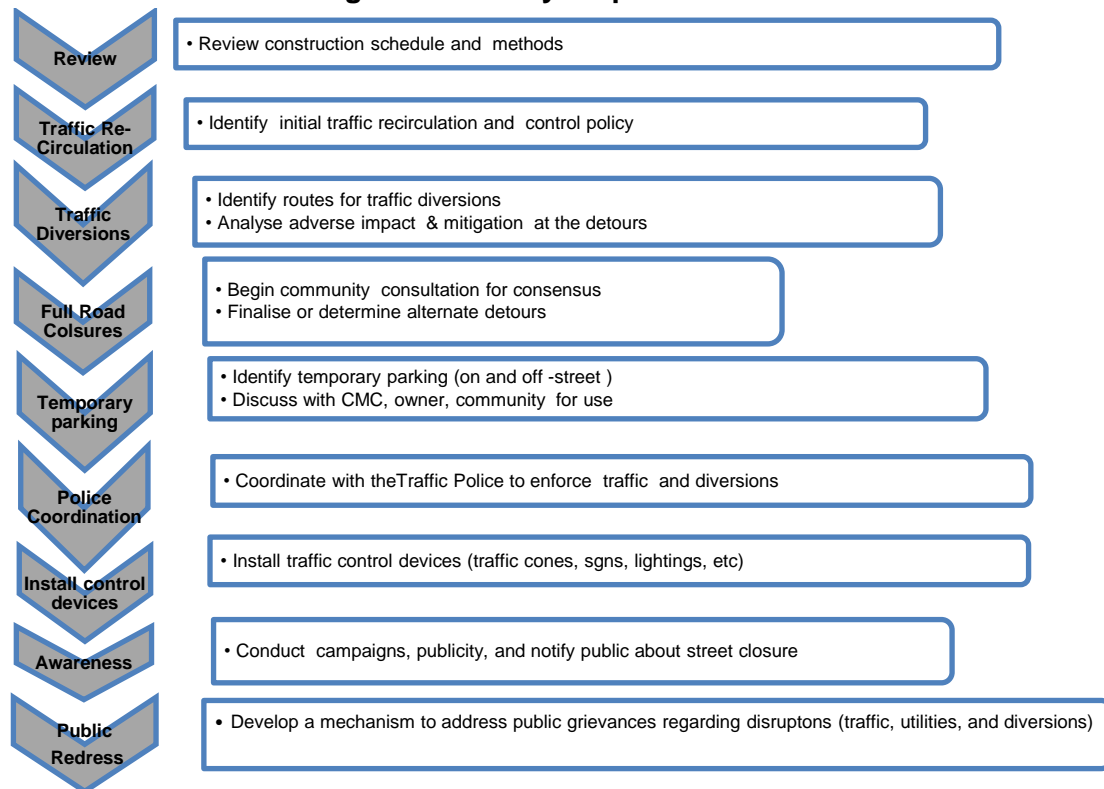
C. Analyze the impact due to street closure, if required

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

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 A1: 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

11. 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”).

12. 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.

13. 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.

14. 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.

15. 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.

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.
2	19.11.13	All Sub Project Sites of Tranche III	Regarding NoCs and undertakings	Key gender issues and requirements of the local women groups in the area.
3	20.11.13	All Sub roject Sites of Tranche III	Regarding NoCs and undertakings	Income generating activities which can be taken up by the local community.
4	28.13.13	All Sub Project Sites of Tranche III	Regarding NoCs and undertakings	Expected benefits of the project by the local community and the stakeholders.
5	21.05.14	Rupnagar Wetland Nangal Wetland Parking at Gurudwara Patalpuri Tranche III		NoC and undertakings required for development of the site.
6	14.07.14	"		

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:	

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

Overall project description and objectives

Description of sub-projects

Environmental category of the sub-projects

Details of site personnel and/or consultants responsible for environmental monitoring

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		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

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

Provide the monitoring results as per the parameters outlined in the EMP. Append supporting documents where applicable, including Environmental Site Inspection Reports. 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:

- (i) What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;
- (ii) If muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads;
- (iii) 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;
- (iv) Are their designated areas for concrete works, and refuelling;
- (v) Are their spill kits on site and if there are site procedure for handling emergencies;
- (vi) Is there any chemical stored on site and what is the storage condition?
- (vii) Is there any dewatering activities if yes, where is the water being discharged;
- (viii) How are the stockpiles being managed;
- (ix) How is solid and liquid waste being handled on site;
- (x) Review of the complaint management system;
- (xi) Checking if there are any activities being under taken out of working hours and how that is being managed.

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

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)

Brief discussion on the basis for monitoring

Indicate type and location of environmental parameters to be monitored

Indicate the method of monitoring and equipment to be used

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 ($\mu\text{S/cm}$)	BOD (mg/L)	TSS (mg/L)	TN (mg/L)	TP (mg/L)

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity ($\mu\text{S/cm}$)	BOD (mg/L)	TSS (mg/L)	TN (mg/L)	TP (mg/L)

Noise Quality Results

Site No.	Date of Testing	Site Location	LA _{eq} (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LA _{eq} (dBA) (Government Standard)	
			Day Time	Night Time

SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

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

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

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

NO OBJECTION CERTIFICATES AND UNDERTAKING FOR OPERATION AND MAINTENANCE

No Objection Certificate and Undertaking for Sangrur Kothi

CERTIFICATE AND UNDERTAKING

It is certified that: -

1. The DIWAN KHANA, SANGRUR
(details of land/area/ building) Where
the KOTHI (OFFICER'S QUARTERS)
(name of the project) project is proposed, for
execution by PHTPB of the Tourism Department (Punjab), is under the ownership of
DEPT. OF CULTURE and is
(Details of the owner)
under the possession of
Dept of Cultural Affairs (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

Dept of Cultural Affairs
(Name of the department/organization)

Place: Chandigarh

Date: 27/8/14

Signature MB

Department/Organisation/Owner
(Official Stamp)

Counter Signed

20/8/14
Deputy Commissioner,
(SANGRUR)

Cultural Affairs, Archaeology &
Museums, Punjab, Chandigarh

NO OBJECTION CERTIFICATE

It is certified that there is no objection if the proposed project

KOTHI (OFFICER'S QUATERS)

(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

DIWAN KHANA, SANGRUR

(details of land/area/ building)

Place: Chandigarh

Signature

mm

Department /owner

Date: 27/8/14

(Official Stamp)

Counter Signed

Director,
Cultural Affairs Archaeology &
Museums, Punjab, Chandigarh

ASDC 20/8/14

Deputy Commissioner

ASDC

(Official Stamp)
Deputy Commissioner
SANGRUR

No Objection Certificate and Undertaking for Archive Building Sector 38, Chandigarh

CERTIFICATE AND UNDERTAKING


It is certified that: -

1. The Archive 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


Director
Department/Organisation/Owner
& Museums
(Official Stamp)

Counter Signed

Deputy Commissioner
(Official Stamp)

NO OBJECTION CERTIFICATE

It is certified that there is no objection if the proposed project
Development of Craft Outlet & Tourist Reception Center.....
 (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 *Archives Bhawan*
Plot No 3, Sector 38A, Chandigarh.....
 (details of land/area/ building)

Place: CHANDIGARH

Date:

Signature

MRB

Department /owner

Cultural Affairs / PHTPB / IDIPT
& Museums - Chandigarh

(Official Stamp)

Counter Signed

Deputy Commissioner

(Official Stamp)