



Initial Environmental Examination

Project Number: 40648-034
July 2015

IND: Infrastructure Development Investment Program for Tourism - Tranche 3

Submitted by

Program Management Unit, Government of Uttarakhand, Dehrdaun

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Asian Development Bank



Govt. of Uttarakhand

Program Management Unit

Infrastructure Development Investment Program for Tourism
(ADB Assisted – Loan No. 2833, India)
Government of Uttarakhand

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SM/Shaamita Singh
GM
Uttarakhand
Simply Heaven!

Ref: 2651/2-10-ADB IDIPT/249/2014-15

Date: 20.06.2015

To

Country Director,
Indian Resident Mission (INRM),
Plot no -4, San Martin Marg, Chanakyapuri,
New Delhi 110021, PB No-53311 (HPO)



Sub: IDIPT UK Tranche III: Submission of IEE document for “Development of Tourism Safety & Management System” sub project

Ref: IEE (based on SAR) submitted vide letter no. 1714/2-10-ADB IDIPT/249/2014-15 dt. 16.10.14

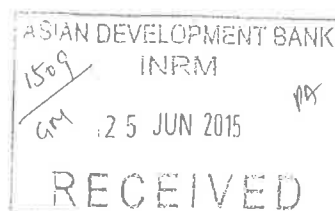
Respected Madam,

Kindly refer to the IEE document for “**Development of Tourism Safety & Management System**” sub project (package no. UK/IDIPT-III/GEN/02) submitted vide this office letter dt. 16.10.14, with the name “Establishment of Tourist Inflow Management System in Uttarakhand”.

It is also informed that there is no deviation in the components from the SAR stage to DPR and hence there is no change in the IEE document, but only the name of the sub project was changed as agreed in the State Level Empowered Committee Meeting pursuant to which the name was also changed in the Procurement Plan of Tranche 3. The updated IEE document is hereby submitted for your kind perusal and approval.

Yours Sincerely

Encl.: - As above



(R.K. Joshi)
Additional Program Director

Environmental Assessment Document

Initial Environmental Examination (IEE)
Loan Number: 3223 IND
Package No: UK/IDIPT-III/GEN/02
Updated June 2015

Infrastructure Development Investment Programme for Tourism, Uttarakhand

Subproject – Development of Tourism Safety & Management System

DESIGN, BUILD, OPERATE and TRANSFER

TRANCHE III

Prepared by the Government of Uttarakhand for the Asian Development Bank

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ABBREVIATIONS

ADB	- Asian Development Bank
ASI	- Archaeological Survey of India
CPCB	- Central Pollution Control Board
CPR	- Common property resources
DOT	- Department of Tourism
DSC	- Design Supervision Consultants
EA	- Executing Agency
EIA	- Environmental Impact Assessment
EMP	- Environmental Management Plan
FSI	- Forest Survey of India
GMVN	- Garhwal Mandal Vikas Nigam
Gol	- Government of India
GoU	- Government of Uttarakhand
HNB	- Hemwati Nandan Bahuguna
IA	- Implementing Agency
IDIPT	- Infrastructure Development Investment Program for Tourism
IEE	- Initial Environmental Examination
IUCN	- International Union for Conservation of Nature
MFF	- Multi-tranche Financing Facility
MoEF	- Ministry of Environment and Forests
NDBR	- Nanda Devi Biosphere Reserve
NDNP	- Nanda Devi National Park
NP	- National Park
OM	- Operations Manual
PA	- Protected area
PD	- Program director
PIU	- Project Implementation Unit
PMC	- Project Management Consultant
PMU	- Project Management Unit
PUC	- Pollution under Control
REA	- Rapid Environmental Assessment
SEIAA	- State Environment Impact Assessment Authority
SLEC	- State-level empowered committee
SPCB	- State Pollution Control Board
SPM	- Suspended Particulate Matter
SPS	- Safeguard Policy Statement
UNESCO	- United Nations Educational Scientific and Cultural Organisation
UTDB	- Uttarakhand Tourism Development Board
UUSDIP	- Uttarakhand Urban Sector Development Investment Program
WLS	- Wildlife Sanctuary

CURRENCY EQUIVALENTS

(as of 2nd September 2014)

Currency unit – Indian rupee (Rs)

Rs1.00 = \$0.0164

\$1.00 = Rs 61.00

WEIGHTS AND MEASURES

dB (A) A-weighted decibel

ha - hectare

km - kilometer

km²- square kilometer

µg - microgram

m - meter

m²- square meter

MW (megawatt) - megawatt

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EXECUTIVE SUMMARY

1. **Background:** The India Infrastructure Development Investment Program for Tourism (IDIPT) envisages environmentally and culturally sustainable and socially inclusive tourism development in the states of Himachal Pradesh, Punjab, Tamil Nadu and Uttarakhand, delivered through a Multi-tranche Financing Facility (MFF) loan from Asian Development Bank (ADB). IDIPT Project 3 includes the states of Uttarakhand and Tamil Nadu. Executing Agency is the Tourism Department of the Government of Uttarakhand; and the Implementing Agency is the Project Management Unit (PMU) of the Uttarakhand Tourism Development Board (UTDB).

2. This Initial Environmental Examination (IEE) has been prepared for the sub-project “**Development of Tourism Safety & Management System in Uttarakhand**” as part of IDIPT Tranche III Uttarakhand. This IEE assesses the impacts for the component - ‘**Construction of 20 Twenty Kiosks**’ (Pre-Fabricated Structure) of 400 sq feet area, with a provision of multiple window registration facility/ Registration Counters under the sub project.

3. **Executing and implementing agencies:** The executing agency is the Uttarakhand Tourism Development Board (UTDB) The implementing agency is Project Implementation Unit (PIU), to be supported by Design Supervision Consultant (DSC); Project Management Consultants (PMC) and in coordination with Project Management Unit (PMU). A team of technical, administrative and financial officials, including safeguards specialists, is being provided at the PMU to implement, manage and monitor project implementation activities. The PIUs are staffed by qualified and experienced officers and responsible for the day-to-day activities of subproject implementation in the field, and will be under the direct administrative control of the PMU. Consultant teams are responsible for subproject planning and management and assuring technical quality of design and construction; and designing the infrastructure and supervising construction; and safeguards preparation.

4. **Categorization:** The sub project is classified as Environmental Category B as per the SPS, 2009 as no significant impacts are envisioned. Accordingly this Initial Environmental Examination (IEE) has been prepared and assesses the environmental impacts and provides mitigation and monitoring measures to ensure no significant impacts as a result of the subproject.

5. **Need:** At present no tourist registration system exists in the state making it impossible for the administration to document, manage, and regulate the flow of tourist into the state especially during the Char Dham Yatra. Despite the fact that there is a foot fall of more than 1.5 crore tourist / pilgrims round the year out of which more than 70% tourist arrive during the Pilgrimage season between May to November. This maddening rush of tourist wreaks havoc during the Pilgrimage season in various parts of the State in terms of Traffic Jams, Capacity overload, etc.

6. **Subproject Scope:** The sub project aims to provide a technology based platform that would help manage Tourist flow, showcase new destinations and provide input to government agencies for speedy and effective management of any emergency and disaster. The primary goal of this project is to address the following:

- **Tourist Flow Management based on Carrying Capacity:**

To control tourist inflow into any given destination, based on Optimum Carrying Capacity of the tourist destinations of the Second and the Third steps, as defined in

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4. **Categorization:** The sub project is classified as Environmental Category B as per the SPS, 2009 as no significant impacts are envisioned. Accordingly this Initial Environmental Examination (IEE) has been prepared and assesses the environmental impacts and provides mitigation and monitoring measures to ensure no significant impacts as a result of the subproject.
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the Uttarakhand Tourism Development Master Plan 2007 – 2022 (UNWTO) and especially of Char Dhams (Abode of GOD) in terms of existing infrastructure and service facility available at present in various levels, to prevent and manage either overcrowding or underutilization of available resources of any given destination.

- **Showcasing Alternate Destinations:** When the flow of incoming tourists, exceeds the "Optimum Carrying Capacity", as mentioned above, they will be diverted to lesser known places of tourist interest, thereby showcasing alternate destinations and adding value to the Uttarakhand package.
- **Emergency and disaster management:** The system will track the movement of individual tourists as well as all the vehicles inside the state of Uttarakhand. Thus, it will be much easier for the state to manage and organize rescue operation in case of an emergency. The emergency and disaster management preparedness is of paramount importance as the state often ravaged by natural disasters. The case in point being the tragedy which struck the Pilgrimage circuit last year.

7. The hardware component of the sub project is restricted to construction of **Registration kiosks**. These will be constructed on Department of Tourism land as an extension to the existing TRHs in the proposed sites. Tourist registration kiosks will capture the Personal data, Details of other travellers in the group, Emergency contacts, and ID documents for scanning about every tourist.

Implementation Schedule: Project work will be started in third quarter of 2015 and will be completed in 24 months. This IEE is based on DPR, and as per DBO contract after finalization of all designs, concerned contractor will update this IEE and EMP.

8. **Entire package work will be on DBO contract basis.**

9. **Description of the Environment** Subproject components are located across the state at 20 locations as an extension to the already existing Tourist Rest Houses. As the kiosks are proposed in the Tourism Dept. land, as an extension to the existing TRHs no adverse impacts due to siting or location are envisaged. No subproject components are located within the forest. Trees, vegetation and animals in the subproject sites are those commonly found in built-up areas. No rare, threatened, endangered or endemic flora or fauna are anticipated to be impacted by the sub project.

10. No heritage sites listed by Archaeological Survey of India (ASI) are anticipated to be impacted by the subproject. Similarly, no common property resources (CPR) such as public wells, water tanks, play grounds, common grassing grounds or pastures, market areas and community buildings will be affected by the proposed subproject. The environmental impact of the subproject is not significant and is placed at Category B level, as per ADB's Safeguards Policy Statement. The specific measures stated in the EMP will address all adverse environmental impacts due to the subproject. A detailed monitoring plan prepared as part of this IEE will further mitigate negative environmental impacts during implementation.

11. The proposed subproject alignment/route is within the land under the ownership of Dept. Of Tourism, Uttarakhand Government. There are no impacts envisaged on land acquisition or resettlement due to the proposed subproject components.

12. The project involves simple, straightforward construction of 400 sq feet with prefabricated material and there are not much significant adverse impacts envisaged due to this sub project. The impacts occurring during the construction phase are generic to the construction activities. Key impacts during construction phase are envisaged on the following aspects: (i) dust generation, air and noise pollution from construction activities, (iv) handling of construction materials at site, (v) disposal of construction waste materials, and (vi) adoption of safety measures during construction. These are common impacts of construction and there are well developed methods for their mitigation. Further, the project is relatively very small in scale and involves straightforward construction and low-maintenance operation, so it is unlikely that there will be major impacts.

13. No impacts were identified as being due to the subproject design or location. EMP, proposed as part of this IEE which includes (i) mitigation measures for adverse environmental impacts during construction, (ii) environmental monitoring program, and the responsible entities for mitigation, monitoring, and reporting; (iii) public consultation and information disclosure; and grievance redress mechanism. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. The project activities will require minimum uprooting of trees and vegetation as it is planned on vacant patches under the possession of Tourism Dept., within the TRH premises.

14. The implementation of the sub project will not involve dislocation or involuntary resettlement of people. The sub project was conceived in view of the disaster that struck the state in June 2013, during the peak pilgrim season in the state. Positive impact is anticipated in terms of enhancing the state's resilience for sustainable tourism and its preparedness by:

- Regulating flow of tourist from one destination to another based on safe carrying capacity will ensure better services and amenities for the tourists, enriching their experience and enhancing the image of the state.
- Easy accessibility of information for the tourists will ensure seamless travel experience
- In case of an emergency or disaster this system will help the state in speedy effective rescue operation.

15. The subproject will: (i) employ in the workforce to the extent possible, people who live in the vicinity of construction sites to provide them with a short-term economic gain; and (ii) ensure that people employed in the longer term to maintain and operate the new facilities are residents of nearby communities.

16. Once the system is operating, the registration process will operate with routine maintenance, which should not affect the environment. As the Registration kiosks are proposed within existing TRH premises, no separate toilets or sewage and sanitation measures are proposed. Thus environmental impacts are not envisaged during the operation phase. However, the IEE will be assessed again by the DBOT Contractor and may be updated if required.

17. **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.

18. The EMP will form part of the civil work bidding and contract documents. The DBOT contractor will be required to (i) update the IEE during detailed design stage; (ii) establish an operational system for managing environmental impacts (iii) carry out all of the monitoring and mitigation measures set forth in the EMP; (iv) implement any corrective or preventative actions set out in safeguards monitoring reports that the PMU/PIU will prepare from time to time to monitor implementation of this IEE and EMP; and (v) allocate a budget for compliance with these EMP measures, requirements and actions.

19. Mitigation will be assured by a program of environmental monitoring to be conducted during construction stages. The environmental monitoring program will ensure that all measures are implemented, and will determine whether the environment is protected as intended. It will include observations on- and off-site, document checks, and interviews with workers and beneficiaries. Any requirements for corrective action will be reported to the ADB.

20. **Consultation, Disclosure and Grievance Redress** Contractor will do consultation during updating of IEE. The sub project is in state interest and essential both for tourist regulation and ensuring safe and sustainable tourism in the state. The stakeholders were involved in developing the IEE through discussions 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 and will be disclosed to a wider audience via the ADB website. 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.

21. **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, semi -annual monitoring reports to the PMU. The PMU will consolidate the semi-annual report and will send it to ADB. ADB will post the environmental monitoring reports on its website.

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

I. INTRODUCTION

A. Project Background

23. Asian Development Bank (ADB) approved the Infrastructure Development Investment Program for Tourism (IDIPT) on 02 April 2012 to promote economic growth in the State of Uttarakhand. The main goal of the program is to elevate the overall economic status in the State by improving both service delivery system and urban management in principal cities and important towns of the State. Investment planning has been formulated mainly based on the requirement for strengthening of Tourism sector. Loan funds from ADB will be available to the Uttarakhand Tourism Development Board (UTDB) through a number of tranches (projects). ADB has a plan to provide loans up to amount of US\$23.28million to finance projects under IDIPT Tranche III. Each tranche will be comprised of a number of sub-projects and the execution of the same will be decided after thorough assessment and time bound planning. The scope includes design and implementation of different schemes formulated based on need assessment and long term planning processes. To support implementation of the program, UTDB has engaged Project Management Consultant (PMC) and three separate Design Supervision Consultants (DSC).

24. The proposed subproject is conceptualized as priority sub project of Uttarakhand. It is proposed to regulate the tourist management system in the state which includes the establishment of registration centres at the entry points or gateways to Uttarakhand. The development of tourist facilities and a dedicated route will reduce inconvenience to locals and will also improve the livelihood of stakeholders in the region. As per the ADB's Environmental Assessment Guidelines, and in line with the Environment Assessment and Review Framework (EARF) for the project, the sub-project namely '**Establishment of Tourist Inflow Management System in Uttarakhand**' is categorized as B and an Initial Environmental Examination (IEE) prepared.

B. Purpose of the IEE

25. This IEE assesses the environmental impacts due to the proposed subproject and specifies measures towards addressing the impacts. The IEE was based on a review of subproject site plans and reports; field visits, and secondary data to characterize the environment and identify potential impacts; and interviews and preliminary discussions with stakeholders. This IEE provides mitigation measures for impacts related to construction of registration counters/ kiosks in the land of Dept. Of Tourism, as an extension to the existing TRHs. An EMP outlining the specific environmental measures to be adhered to during implementation of the subproject has been prepared.

C. Extent of the IEE

26. Indian laws and ADB policy require that the environmental impacts of development projects are identified and assessed as part of the planning and design process, and that action is taken to reduce those impacts to acceptable levels. This is done through the environmental assessment process, which has become an integral part of lending operations and project development and implementation worldwide. The realm of environmental regulations and mandatory requirements for the proposed sub-project is shown in **Table 1**.

D. ADB Policy

27. ADB's Safeguard Policy Statement (SPS, 2009) requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for

Environmental Assessment as described in its Operations Manual (OM). This states that ADB requires environmental assessment of all project loans, program loans, sector loans, sector development program loans, financial intermediation loans and private sector investment operations. The nature of the 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 impacts and are assigned to one of the following categories:

- Category A: Projects that could have significant environmental impacts. An Environmental Impact Assessment (EIA) is required.
- Category B: Projects that could have some adverse environmental impacts, but of less significance than those for category A. An Initial Environmental Examination (IEE) is required to determine whether significant impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.

E. Environmental Regulatory Compliance

National Law

28. The Environmental Impact Assessment (EIA) Notification, 2006 (and its subsequent amendments till date) by the Ministry of Environment and Forests (MoEF), Government of India (GoI) specifies the mandatory environmental clearance requirements. All projects/activities are broadly categorized in to Category A and Category B for the mandatory environmental clearance requirements, based on the spatial extent of potential impacts and potential impacts on human health and natural and man-made resources. Projects included as Category A in the Schedule require prior environmental clearance from the Central Government whereas projects included as Category B in the Schedule require prior environmental clearance from the State Environment Impact Assessment Authority (SEIAA). Any project 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, and (iv) inter-State boundaries and international boundaries. Given that the subproject is not covered in the ambit of the EIA notification, Environment clearance requirements from the GoI are not triggered. Proposed sub project is screened through Environmental Regulatory Compliance as shown in Table-1 below.

Table 1: Environmental Regulatory Compliance

Applicability of Acts/Guidelines	Compliance Criteria
The EIA notification, 2006 (and its subsequent amendments till date) provides for categorization of projects into category A and B, based on extent of impacts	This subproject is not covered in the ambit of the EIA notification as they are not covered in schedule of activities either under Category A or Category B of the notification
ADB Safeguard Policy Statement, (2009)	Sub-project is Category B as no significant impacts are envisaged
The Wildlife Conservation Act, 1972, amended in 2003 and 2006, provides for protection and management of Protected Areas.	Not Applicable
Forest (Conservation) Act, 1980	This act provides guidelines for conservation

	<p>of forests and diversion of forest land for non-forest use. The law also states guidelines on de-reservation of various categories of forests for diversion of forest land. This law describes the penalty for contravention of the provisions of the Act. Restriction on the de-reservation of forests or use of forest land for non-forest purpose. If forest land is to be acquired for the project, the Forestry Clearance needs to be obtained.</p> <p><i>For felling of the tree if any permission will be required from local forest office, but tree removal is not likely in the project</i></p>
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29. **Table 1** 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 clearances from Competent Authorities. Therefore, any further approvals or environmental clearances from the GoI/ State Level Environmental Impact Assessment Authority (SEIAA) 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 categorize the proposed components into categories (A, B or C) to determine the level of environmental assessment required to address the potential impacts. The Rapid Environmental Assessment (REA) checklist method was followed as per ADB requirement to assess the potential impacts of the project in planning phase. The REA checklist is attached as **Annexure 1** with this report. 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. The IEE was based mainly on secondary sources of information and field reconnaissance surveys. Stakeholder consultation was an integral part of the IEE. An Environmental Monitoring Plan outlining the specific environmental measures to be adhered to during implementation of the sub-project has been prepared.

F. Review and Approval Procedure

30. For Category B projects the Draft Environmental Status report is reviewed by ADB's Regional Department sector division and Environment and Social Safeguards Division, and by the Executing Agency, and additional comments may be sought from project affected people and other stakeholders. All comments are incorporated in preparing the final documents, which are reviewed by the Executing Agency and the national environmental protection agency. The EA then officially submits the IEE report to ADB for consideration by the Board of Directors. Completed report is made available worldwide by ADB, via the depository library system and the ADB website.

31. Compliance on Environment Assessment & Review Framework for sub project selection and implementation is shown in **Annexure 2**.

G. Scope of Study

32. This is the IEE report for the subproject viz., Establishment of Tourist Inflow Management System in Uttarakhand. It discusses the environmental impacts and mitigation measures relating to the location, design, construction and operation of physical works proposed under this subproject.

H. Report Structure

33. The IEE has been structured as per ADB's Environmental Assessment Guidelines (2003), and the Government of India's Environmental Impact Assessment Notification (2006). This IEE contains eight sections: (1) Introduction; (2) Description of Project; (3) Description of the Environment; (4) Screening of Potential Environmental Impacts and Mitigation measures; (5) Institutional requirements and Environmental Monitoring Plan; (6) Public consultation and Information disclosure; (7) Findings and Recommendations; and (8) Conclusions.

II. DESCRIPTION OF THE PROJECT COMPONENTS

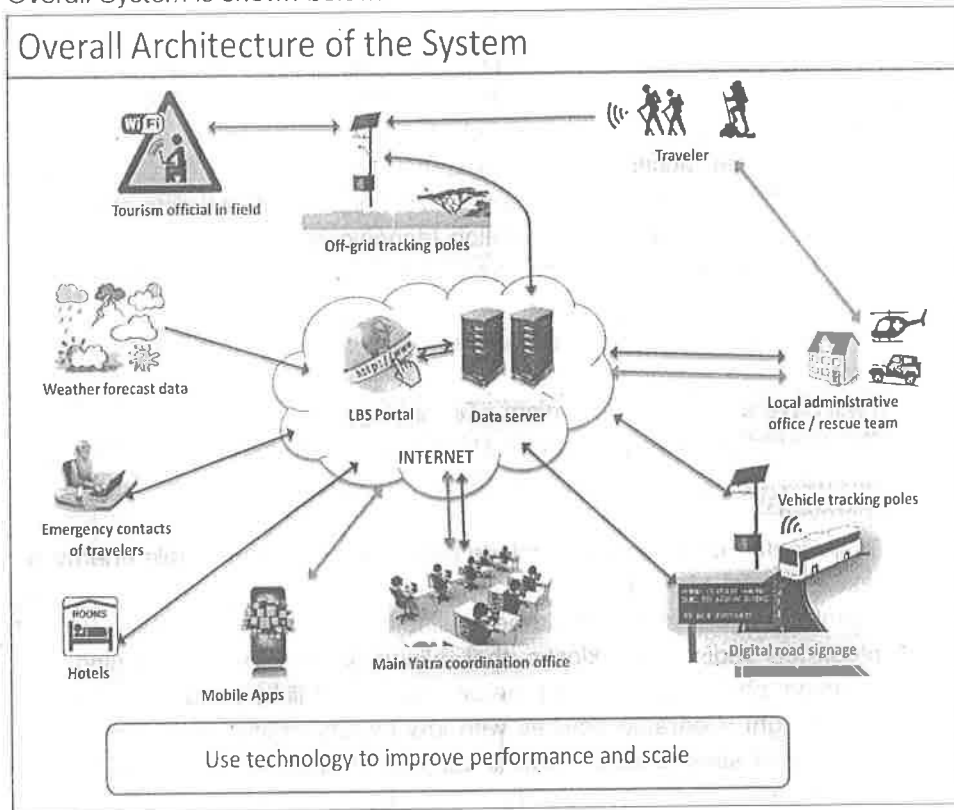
A. Components of the Subproject

34. The components of the sub project have been described below. It is planned that entire package work will be on DBO contract basis.

35. Since the contract will be **Design Build and Operate** basis the construction contractor will design the project as per given specification and accordingly Initial Environmental Examination (IEE) may be updated as per revised design.

36. Photo illustration of project locations shown in **Annexure 3**.

37. Overall System is shown below:



B. Sub Project Components

41. The salient features of the Tourist Inflow Management System are as detailed below;

- i. An ability to keep a real time track of all tourists and vehicles travelling to any destination in the state as well as remote trekking routes
- ii. An appropriate system to tag travellers with Photo ID, Biometric identification and other required parameters
- iii. Appropriate systems to tag all vehicles on hill routes and dynamically monitor their exact / approx. positions to help manage the traffic flow - at the time of any crisis.

- iv. An early / immediate response system in case of a road block, land slide, Could burst sudden flood or any other situation that can hamper the traffic on any given road.
 - v. An early warning system and be intelligent enough to access data from various meteorological departments to predict heavy rains or snow fall on the routes.
 - vi. The system would be DYNAMICALLY linked to all emergency services like Ambulances, Rescue forces, Heavy Machinery, volunteer aiding organizations etc to ensure QRS - Quick Response System.
 - vii. The System would be able to manage, the entire traffic on all hill routes, especially during the peak Pilgrimage Season in order to stop overcrowding of routes.
 - viii. The System will have early / remote - warning systems via large led displays at various points from the entry into hills.
 - ix. It will have an in-built ability to warn people from getting into a specific route due to any problem. It has to be using SMS for the traveller at specific locations / points of entry / or En-route. It would help decongest the routes to ensure smoother and faster rescue and help aid to reach the site of crisis.
 - x. It will provide access to critical data Like Nearest - Accommodation, Rest Houses, fuel station, Medical Centers, Hospitals etc for tourists at any given point
 - xi. It will merge various communication technologies to provide full backup, should there be a breakdown of power, satellite link, and other hardware.
 - xii. It will be scalable and modular.
 - xiii. It will have a robust mechanism and maximum automation to reduce human errors.
 - xiv. It will have a failsafe mechanism / Technology
 - xv. The service providing company should have ownership of all source code and hardware designs except for those appliances that are generic and BIS approved.
 - xvi. The failsafe mechanism will include dependence on renewable energy sources in case of a total power failure.
 - xvii. Digital signage systems would be available that provides multi lingual information
 - xviii. Integrated registration kiosks that allows id document scanning, bio metric scanning, photo capture and manual data entry will be installed at key locations
 - xix. Light weight Wearable devices with low battery power consumption and having longevity of several weeks that is capable of emitting RFID , GPS position and two way communication, FM based dedicated emergency messages receiving capability will be used.
 - xx. The System will generate huge database of Tourists along with real-time information
42. The System will also help tourism promotion by the following:
- Promotion of various destinations through search engine optimization and other web promotions
 - Promotion of remote destination through intelligent movement tracking of travellers.
 - Online booking system on full advance payment through credit card gateway
 - Real time status of accommodation at most Hotels / Rest houses / Wayside Dormitories.

- Geo Location based prediction for services required by travellers
- Mobile application to help plan and confirm an itinerary
- Comprehensive MIS system to record:
 - a. Age
 - b. Gender
 - c. Group size
 - d. Native language
 - e. Home state

The System will also have a Location Based Services Portal to provide information to tourists and also an online e-commerce platform.

The System will be a vehicle and individual tracking system that is ideally suited for hilly regions where GSM and GPS gadgets are unreliable and do not provide a viable solution, the following equipment will be used to track Tourists alike in remote areas whereas the Location Based Services Portal will provide various other mobile applications where GSM is available

- **Passive RFID** – To be used as ID of the tracked entity.
- **Active RFID** – For free wireless transmission with low hardware cost and long battery life
- **GSM modem** – For long range wireless communication
- **Directional RF repeaters** – For free medium range wireless communication in line-of-sight where GSM network is unavailable.
- **V - SAT (Very Small Aperture Terminal) Equipment set** – For long range wireless communication where GSM networks are not available
- **IP and Wired cameras:** - To get on ground situation and monitor the live stream.

C. Tourist Registration kiosks

43. Twenty Kiosks (Pre-Fabricated Structure) of 400 sq feet area, with a provision of multiple window registration facility to minimize time spent for registration will be constructed on Department of Tourism land. Registration kiosks are multi-terminal kiosks with internet connectivity that offer registration and passive tag issuing services to tourists. Each kiosk will be manned by 4 persons in two shifts, with a supervisor. The location of the kiosks is given in the table 4.

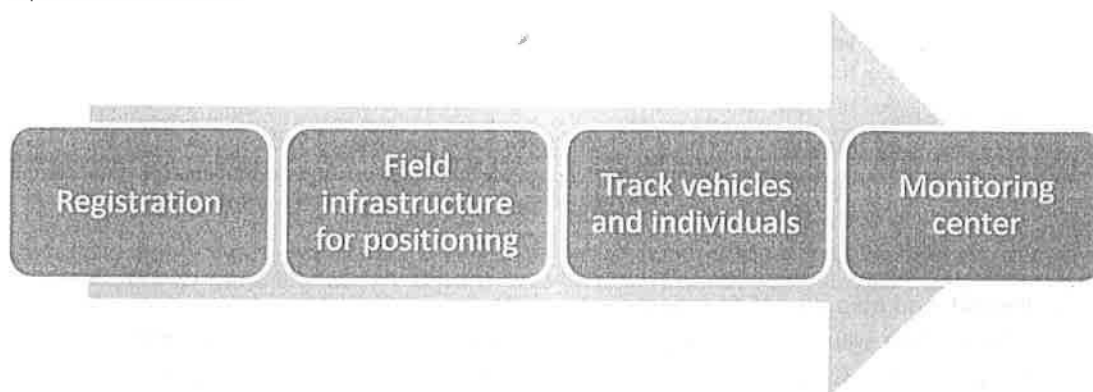
Tourist registration kiosks will capture the following information about every tourist

- Personal data
- Details of other travellers in the group
- Emergency contacts
- ID documents for scanning

A registration kiosk will have the following setup

1. Furniture
2. Internet connectivity equipment
3. Electrical setup
4. Computer terminals
5. Active/Passive readers

6. Power backup equipment
7. Operational location



Registration Process

Operational expenses of a kiosk will require the following setup

1. Personnel salaries
 2. Electricity
 3. Maintenance of equipment and furniture
 4. Internet connectivity
 5. Miscellaneous expenses
44. The components of the subproject are based on the DPR which may change as per final design under DBO contract. **Table 2** indicates proposed locations for kiosks which are under the ownership of Dept. Of Tourism, Govt. of Uttarakhand

Table 2: List of locations of Registration kiosks

S.No	Locations	No. of kiosks proposed	Land Status
1	Rishikesh	04	Own land (Dept. of Tourism)
2	Haridwar	02	Own land (Dept. of Tourism)
3	Rudraprayag	02	Own land (Dept. of Tourism)
4	Uttarkashi	01	Own land (Dept. of Tourism)
5	Chamba	01	Own land (Dept. of Tourism)
6	Barkot	01	Own land (Dept. of Tourism)
7	Dehradun	01	Own land (Dept. of Tourism)
8	Mussoorie	01	Own land (Dept. of Tourism)
9	Joshimath	01	Own land (Dept. of Tourism)
10	Asan Barrage	01	Own land (Dept. of Tourism)

11	Ukhimath	01	Own land (Dept. of Tourism)
12	Jankichatti	01	Own land (Dept. of Tourism)
13	Tehri	01	Own land (Dept. of Tourism)
14	Gwaldam	01	Own land (Dept. of Tourism)

D. Need

45. To ensure optimal utilization of the tourism potential of Uttarakhand, the state needs a technology based platform that would help manage Tourist flow, showcase new destinations and also will provide input to government agencies for speedy and effective management of any emergency and disaster.

E. Assessment of Existing Situation

46. At present there is no tracking, monitoring and regulation system for management and documentation of Tourist Inflow into the state. All the stake holders – Government subsidiaries e.g. GMVN, KMVN, Private hoteliers and Tour operators attract tourists only to those destinations where they have their facilities, independent of each other, resulting in regular overcrowding of most of the well known tourist destinations of the state. The situation worsens into chaos during peak pilgrimage season due to huge upsurge in demand for accommodation, service and amenities and bursting at the seam. This gives rise to a sense of betrayal in the tourists as they have to pay for unacceptable level of services and amenities at un-reasonable prices. On the other hand the state administration, in the absence of a dedicated Tourist Inflow Management System, grapple with the situation to maintain order.

47. The existing situation also stops the state to showcase hitherto unknown destination of tourist interest. The situation worsens into a nightmare in case of an emergency or disaster as witnessed during the peak pilgrimage season in 2013 June. Without any authenticated information the state was in disarray to carry out speedy and effective rescue operation.

F. Implementation Arrangement

48. The sub project will be implemented by UTDB, controlled by the Main Co-ordination Office, aided by the 13 Regional / District offices. The Tourism Department has appointed District Tourism Development Officers (DTDO) in all the 13 districts of the state. The regional support center will be housed in the existing offices of the DTDOs at the district level. The 13 Regional (DTDO) offices will have 02 Junior MIS expert and 02 Senior MIS Expert each and 20 Kiosks will have 08 data entry operators, 02 Junior MIS experts each, and the Central Office (UTDB) will have 04 Senior MIS experts, who will work on two shifts and be entirely devoted to managing the software system. The registration kiosks will be housed in existing state government buildings at designated point of entries into the state.

49. The project will be executed through “**DESIGN, BUILD, OPERATE and TRANSFER**” mode. The contractor will set up the required software system and operate it for 10 years. The manpower required will be supplied by the Contractor for the duration of

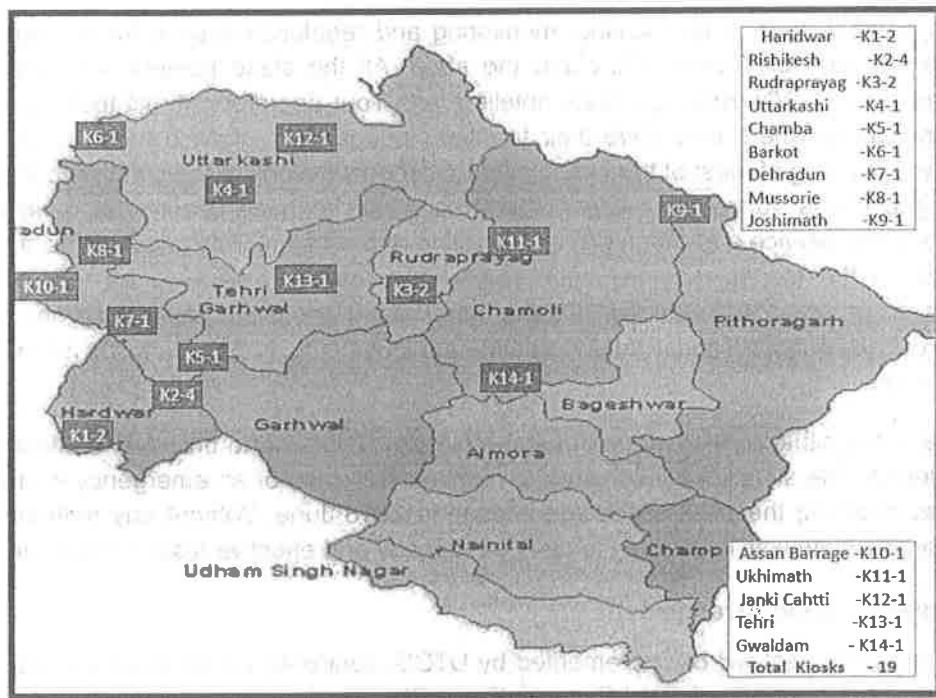
the contract. After completion of the contract the state will run the system in PPP Public Private Partnership mode.

G. Project Category

50. This is a tourism infrastructure development sub-project, and as explained above it has been classified as Category B, because it is not expected to have major negative environmental impacts. Under ADB procedures such projects require an IEE to identify and mitigate the impacts, and to determine whether further study or a more detailed EIA may be required. The environmental screening revealed that the project route is away from protected or sensitive areas.

H. Project Location and Layout

51. The proposed locations for construction of kiosks is proposed in whole Uttarakhand, as an extension to the existing TRHs i.e, on the land of Tourism Dept., Govt. of Uttarakhand. The Sub project will benefit the entire state. The locations have been marked in map, given below.



I. Proposed Project Implementation Schedule

52. The implementation period for the proposed subproject is 24 months. The sub project is under bidding process and work is expected to be awarded by last quarter of 2015 and will be completed by the last quarter of 2017.

III. DESCRIPTION OF THE EXISTING ENVIRONMENT

53. This section presents a brief description of the existing environment of the state, including its physical resources, ecological resources, socio-economic development and social and cultural resources. Broad aspects on various environmental parameters such as geography, climate and meteorology, physiography, geology, seismology, ecology, socio-cultural and economic development parameters that are likely to be affected by the proposed subproject are presented. Secondary information was compiled from relevant government agencies like the Forest Department, State Environment Protection and Pollution Control Board, and Metrological Department.

A. Environmental Profile – Uttarakhand

54. Uttarakhand is the newly formed hill state in the Indian Himalayan Region which became a separate state, carved out of hill districts and sub Himalayan regions of Uttar Pradesh in the year 2000. The geographical location (28°43' N to 31°27' N and 77°34' E to 81°02' E) resource setting of Uttarakhand is unique and shares its borders with China and Nepal. It borders the Tibet Autonomous Region on the north, Nepal on the east and the Indian states of Uttar Pradesh to the south, Haryana to the west and Himachal Pradesh to the north west. There are 13 districts in Uttarakhand which are grouped into two divisions: Kumaon division and Garhwal division.

55. Uttarakhand has a total geographic area of 53,483 km², of which 93% is mountainous and 64% is covered by forest. Most of the northern parts of the state are part of Greater Himalaya ranges, covered by the high Himalayan peaks and glaciers, while the lower foothills were densely forested. The difference in altitude between the lowest parts and the highest part (snow peaks of Nandadevi) is almost 7,000 meters.

Climate

56. The climate of Uttarakhand is sharply demarcated in case of its two distinct divisions: the predominant hilly terrain and the smaller plain region. The climate in the northern part of Uttarakhand is typically Himalayan. This mountain range itself exerts an appreciable extent of influence on monsoon and rainfall patterns. Within the Himalayas, climate differs depending on altitude and position. Climate ranges from subtropical in the southern foothills, averaging summer temperatures of about 30°C and winter temperatures of about 18°C. Warm temperate conditions prevail in the Middle Himalayan valleys, with summer temperatures usually hovering about the mark of 25° C and cooler winters. Cool temperate conditions dominate the higher areas of the Middle Himalayas, where the summer temperatures are usually around 15 to 18°C and winters drop below the freezing point. At altitudes over 4,880 m (16,000 feet), the climate is bitterly cold with temperatures consistently below the freezing point and the area perennially shrouded in snow and ice. The eastern flanks of the Himalayan ranges are subject to heavy rainfall while the western section is relatively dry.

Geology and Topography

57. The continuing evolution of the Himalayas is reflected in Uttarakhand's seismicity and active land movements. The global geo-tectonic environment has left a strong imprint on the region and is continually altering it to present dynamic landforms and distinct changes that

are not only restricted to Uttarakhand but to the entire Himalayan-Indo-Gangetic region of India and continuum of mountain along Hindu Kush Himalayas. Most of Uttarakhand is hilly, except the districts of Haridwar, Udham Singh Nagar, and part of Dehradun.

58. The southernmost zone is the Foothills fault that is all along the foot of the Shiwalik hills. This is not a single fault extending throughout but a series of overlapping and sometime interlacing faults across which the land mass has moved significantly. The relative movement between the plains and the Shiwaliks can be seen from the perspective of the hundreds of meters of alluvial material that has accumulated with a thickness of over 500 m and the heights of nearly 1,600 m attained by these hills. This continual upheaval and burial has brought about a unique physiographic situation in the region south of the Shiwaliks. Figure 1 shows the general topography of Uttarakhand.

59. The streams of Shiwalik form a system of coalescing alluvial fans and cones due to their high gradient and dramatic decline in slope. The zone close to the hills, called *Bhabbar*, is almost wholly comprised of boulders and conglomerates, and is highly permeable. The streams lose their watercourse into this zone and are mostly seen as dry beds of boulders. During monsoons these stream flow as torrents for very short durations. The streams, which lose their course in the *Bhabbar*, reappear as springs marking the northern edge of the *Terai*. The *Bhabbar* belt is 7 to 15 km wide, and away from the Shiwalik hills, it grades into a 10 to 40 km wide belt of *Terai*. The *Terai* belt immediately to the south of the *Bhabbar* is composed of the fine material at the edge of the fans and cones. This is often marshy with very shallow ground water levels and water bodies.

60. The Duns (Doon valleys) are longitudinal valleys formed between the northern slopes of the Shiwaliks and the southern slope of the first ranges of the Lesser Himalayas. The Dehradun is the best pronounced of these valleys and is nearly 100 km long with a maximum width of about 45 km. As we proceed eastward the valleys become smaller in dimension. The Duns are composed of gravels, conglomerates, sand and silt and form excellent groundwater aquifers.

61. Beyond the Duns is the Lesser Himalayas which forms a belt largely comprised of meta-sediments. The Lesser Himalayas have numerous thrust sheets that move older rocks above the younger ones to great distances resulting to inverted stratigraphy. The Lesser Himalayas attain a maximum height of around 3,500 m.

62. The Higher Himalayas or the 'Himadri', in which lies the zone of permanent snow, attains a maximum of nearly 8,000 m. Mount Everest is in the eastern continuation of this zone. The rocks are crystalline in nature and are often called the Central Crystallines. The Indus Suture Zone separates the Higher Himalayas and the Tibetan Plateau, which is the physical expression of the co-joining of the two large continental masses.

Soils

63. The soils in the Uttarakhand are alluvial, riverine, non-calcareous to moderately calcareous soils, and have been carved out by the fast flowing rivers draining the Himalayas. Limited distribution of red soil is also found in the Garhwal region. Forest soils, which occur under coniferous and deciduous forest in the Shiwaliks and lower Himalayas, are rich in

organic matter. Himalayan foothill/Terai soil is found along a narrow zone in the foothills. Dabar soils or mountain/hill soils is the collective terminology used for various types of soils occurring at very high elevations, under a wide range of forest types.

64. The soil erosion map for India indicates soil erosion rate of 20 tons per hectare per year (tons/ha/year) in Uttarakhand. The maximum erosion of >80 tons/ha/year occurs in the regions adjoining Shiwalik range. The degradation rate in some parts of plains of Udham Singh Nagar and Haridwar is slightly lower (nearly 5 tons/ha/year). Soil erosion is more in regions lying in Himachal Pradesh where mining activities have been taking place from long. Soil erosion rates in the lower and middle hill districts of Uttarakhand are also approximately 5 tons/ha/year; in some areas they are lower due to the presence of dense forests.

Drainage

65. Most of the perennial rivers are snow fed and originate in the Tibetan plateau or the Himadris. Most rivers form part of the Garhwal Himalayas, the drainage system of which falls under: (i) the Ganga System; (ii) the Yamuna System; and (iii) the Ramganga System.

Land Use

66. Forest land is the major land use in the hills of Uttarakhand and the forest department is the sole owner of the forest land. A clear distinction can be made between land use patterns in the hill and the plain districts in terms of net area sown, barren land, culturable waste, permanent pastures. Some of these classifications show degradation in the upland lowland ecosystems and the others indicate the important role certain land use(s) play in maintaining the ecological balance. For example, the culturable waste land and fallow lands are generally lands left fallow temporarily to regain soil fertility. The districts of Pauri Garhwal, Chamoli and Rudrapur have considerable percentage of barren and fallow lands probably because of the cultivation practices. A mere 10% of the area is sown in the hill districts, given the constraints of irrigation and physiography; whereas the sown area in plain districts is more than five times that of hills.

Surface Water

67. The river systems demarcate the boundaries with neighboring states of Himachal Pradesh, separated by Tons River in the northwest, and Kali River separating it from Nepal in the eastern region. Tons is formed by two rivers the Rupin and Supin with their confluence at Naitwar.

68. Two of India's mightiest rivers, the Ganges and the Yamuna take birth in the glaciers of Uttarakhand, and are fed by myriad lakes, glacial melts and streams in the region. The northern parts of districts of Chamoli and Uttarakashi, most of which lie in the snow covered zone, provide the most important reservoirs of water. The flow of Yamuna recorded at Naugaon is 86 cubic meters per second.

69. East of Yamuna is the river system which forms the Ganga. The main rivers in the upper reaches are the Bhagirathi, Bhilangana, Mandakini, and Alaknanda. Bhilangana joins Bhagirathi at Tehri, just upstream of the Tehri Dam. Mandakini joins Alaknanda at Rudrapur. The Dhaul Ganga, Vishnu Ganga, Pindar and Nandakini are important

tributaries draining into Alaknanda before its confluence with Mandakini. The confluence of Bhagirathi and Alaknanda is at Deoprayag, beyond which it is called the Ganga. The estimated flow of Ganga at Rishikesh is 27 billion cubic meters.

Groundwater

70. The Central Groundwater Board has estimated the annual replenishable quantum of groundwater resources in Uttarakhand to be nearly 0.28 million hectare meter. The estimation of groundwater in the mountainous terrain is very complex and very little empirical data exists. The groundwater occurs often in pockets, depending largely on the secondary porosity developed due to fractures, joints, and faults and is restricted in extent due to topographical features. In the Bhabbar zone the groundwater is very deep, though often in artesian conditions, while in the Terai it is shallow and causes water logging.

B. Ecological Resources and Biodiversity – Uttarakhand

71. The recorded forest area of Uttarakhand is 34,651 sq km, which is around 64% of the state's total geographic area. The forests in the state are spread between a very broad altitudinal range of 300 m and 3,500 m. Eight of the sixteen known forest types in India exist here. These forests have varied vegetation types ranging from tropical deciduous to alpine vegetation. The forests can be broadly categorized into two categories: the hill forests and the lower Shiwalik hill forests, more commonly known as Bhabbar and Terai forests.

72. Of the 34,651 sq km of recorded forest area, 24,643 sq km fall under reserved forests and 9,885 sq km under protected forests. About 24,261 sq km of reserved forest and 99 sq km of protected forest is under the control of the forest department. About 5,000 sq km of protected forest is under civil, soyam, panchayat and private land; this area is accessible to communities dependent on the forests. Apart from the forests there are six national parks and 6 wildlife sanctuaries in the state covering a total forest area of 7,335 sq km. Table 3 provides information on forest areas, national parks and wildlife sanctuaries in Uttarakhand.

Table 3: Uttarakhand Statistics

1	Geographical Area of Uttarakhand	53,483 Sq Km
2	Altitudinal Variation(above mean sea level)	200-8000 m
3	Avg. Annual Rainfall	1547 mm
4	Total Forest Area(Km ²) under various classes	34,651
5	Total Forest Area of the state as percentage of geographical area	64.79%
6	Per Capita Forest Area (ha)	0.41
7	Total Forest Cover(Km ²)	24495 (45.70%)
8	Total Forest Area under Forest Department	24,414.804
9	Forest Area under Forest Department as percentage of geographical area	45.65%
10	Area under Agriculture & Allied Activities (lakh ha)	13.37 (23.6%)
11	Population (Census- 2001)	84,89,349
12	Population (Census- 2011)	101,16,752

13	Floating Population	300-350 lakh
14	Decadal Growth Rate.(2001-11)	19.17%
15	Sex Ratio (Provisional 2011)	963
16	Population Density (Per Sq Km)	189
Source: Uttarakhand Forest Statistics, 2010-11, www. Census.gov.in		

73. The vegetation varies greatly with elevation, from glaciers at the highest elevations to subtropical forests at the lower elevations. The highest elevations are covered by ice and bare rock. Below them, between 3,000 and 5,000 m (9,800 and 16,000 ft) are grasslands and shrublands. Temperate coniferous forests, the western Himalayan subalpine conifer forests, grow just below the tree line. At 3,000 to 2,600 m (9,800 to 8,500 ft) elevation they transition to the temperate western Himalayan broadleaf forests, which lie in a belt from 2,600 to 1,500 metres (8,500 to 4,900 ft) elevation. Below 1,500 m (4,900 ft) elevation lie the Himalayan subtropical pine forests. The Upper Gangetic Plains moist deciduous forests and the drier *Teraï-Duar* savanna and grasslands cover the lowlands along the Uttar Pradesh border. These lowland forests have mostly been cleared for agriculture, but a few pockets remain.

74. Grasslands and other grazing resources occupy a very important position in the hill agriculture and the grassland utilization is an important component of the hill farming system. Grasslands are found in plains and high altitude. In the plains they are called *chaurs* and comprise of typical grasses, which grow up to a height of 2 m. These habitats are ideal for predators while providing forage and fawning cover for herbivores. The alpine grasslands, locally called *bugyals*, occur at altitudes above 1,000 m

Flora and Fauna

75. The floristic analysis of Angiosperm and Gymnosperm in Uttarakhand reveals that there are about 4,048 species belonging to 1,198 genera under 192 families. The floristic diversity reveals that the state harbors 4,000 species of vascular plants of which nearly 116 species are endemic to Uttarakhand as they have confined their distribution to the state. The state has 500 algal species, 751 species of mosses, 18 endemic species of pteridophyta, 435 species of lichens.

76. More than 350 species of plants are threatened and endangered in all forested areas of the state, including 161 species belonging to rare and threatened categories based on IUCN guidelines. Most of these threatened plant species, which grow in the hills, are over-exploited for their medicinal, aromatic or commercial value. Among the tree species members of the family *Aceraceae* are more threatened. All members of the family *Orchidaceae* are indeterminate, rare or endangered. Species of the family *Woodsiaceae* such as *Woodsia andersonii* and *Woodsia cycloba* are believed to be extinct or highly endangered. The status of more than 80% of plants is either indeterminate or has no information, necessitating long term research for area-wise profiling of plant species of the state.

77. Uttarakhand is home for many species of birds, mammals, reptiles as also for the threatened and endemic species. The scientists of Northern Regional Station, Dehradun have compiled a baseline data on the faunal diversity of western Himalaya. An annotated list of 2,248 species of animals, including 1,405 invertebrates' species and 843 vertebrates species have been reported. Important wild animals in Uttarakhand include tigers, leopards, elephants, musk deers, black bears, sloth bears, and brown bears.

C. Economic Resources

78. **Industries.** The State is rich in mineral deposits like limestone, marble, rock phosphate, dolomite, magnesite, copper, gypsum, etc. The number of small scale industries is 25,294 providing employment to 63,599 persons. As many as 1,802 heavy and medium industries with an investment of Rs 20,000 crore employ 5 lakh persons. Most of the industries are forest-based. There is a total of 54,047 handicraft units in the state.

79. **Agriculture.** Major crops include (i) cereals (rice, wheat, barley, maize, manduwa, and sanwan); (ii) pulses (urad, masoor, peas, gahat, rajma, gram, and black soybean); (iii) oil seeds (rape and mustard, seasmum, groundnut, and soyabean); and (iv) other crops (sugar cane and onion).

80. **Livelihood.** The hill economy and sustenance systems are typically dependent on primary sector activities, with high number of cultivators in the hill region and small proportion as agricultural laborers in the plain areas. Women dominate as cultivators, especially in the hilly districts in addition to the duty towards animals. Agricultural labor jobs in the hill districts are very minimal and increase in the districts (Dehradun, Udham Singh Nagar, and Haridwar). The hill district of Pithoragarh also shows significant involvement of women in household industry as compared to other districts largely because of the continuation of the tradition of weaving and wool based activities. Services, trade and commerce also lead in the Terai areas.

D. Social and Cultural Resources

Demographic Profile

81. **Population** The total population estimated for 2011 is 101.17 and density of population is 189 per sq km. Other relevant information is summarized in Table 4.

Sr. No.	District	Population	Growth Rate	Sex Ratio	Literacy	Density
1	<u>Haridwar</u>	1,890,422	30.63 %	880	73.43 %	801
2	<u>Dehradun</u>	1,696,694	32.33 %	902	84.25 %	549
3	<u>Udham Singh Nagar</u>	1,648,902	33.45 %	920	73.10 %	649
4	<u>Nainital</u>	954,605	25.13 %	934	83.88 %	225
5	<u>PauriGarhwal</u>	687,271	-1.41 %	1103	82.02 %	129
6	<u>Almora</u>	622,506	-1.28 %	1139	80.47 %	198

Sr. No.	District	Population	Growth Rate	Sex Ratio	Literacy	Density
7	<u>TehriGarhwal</u>	618,931	2.35 %	1077	76.36 %	170
8	<u>Pithoragarh</u>	483,439	4.58 %	1020	82.25 %	68
9	<u>Chamoli</u>	391,605	5.74 %	1019	82.65 %	49
10	<u>Uttarkashi</u>	330,086	11.89 %	958	75.81 %	41
11	<u>Bageshwar</u>	259,898	4.18 %	1090	80.01 %	116
12	<u>Champawat</u>	259,648	15.63 %	980	79.83 %	147
13	<u>Rudraprayag</u>	242,285	6.53 %	1114	81.30 %	122

As per Census 2011

82. **Rural and Urban Population.** Uttarakhand is predominantly rural with only 25% urban population, which is mainly concentrated in the three districts of Haridwar, Udham Singh Nagar, and Dehradun. Urban population in the plain districts is 39%. Dehradun is the most urbanized district.

83. **Tribal Communities.** Apart from the mainstream populations, Uttarakhand is the home to the following tribal communities: (i) Van Rajis found in the border area of Pithoragrah, Champavat, and Udham Singh Nagar; (ii) Buxas found in Udham Singh Nagar, Terai of Nainital, Haridwar, Pauri and Dehradun; (iii) Jadh found in Neelang and Jadhag Villages of Uttarkashi; (iv) Bhotia and Marchas found in the border district of Chamoli, Uttarkashi, Bageshwar and Pithoragarh; (v) Tharu found in Udham Singh Nagar; and (vi) Jaunsari found in Chakrata Block and Dehradun. Among these the Van Rajis are among the rare groups in the country, which are threatened with extinction.

Physical Infrastructure Services

84. **Education.** Based on 2010 data, Uttarakhand has 22,379 schools/colleges offering basic/secondary education, 106 degree/post degree colleges, 1 central university, 106 industrial training institutes, and 37 polytechnics.

85. **Public Health and Family Welfare.** Based on 2010 data, Uttarakhand has 12 district level hospitals, 3 base hospitals, 55 community health centers, 2 women and child welfare centers, 540 ayurvedic hospitals. There are estimated 8,075 beds in government hospitals.

86. **Electricity and Water Supply.** The installation capacity for Uttarakhand as of 2010 is 1,305.9 megawatts. Population covered by drinking water supply is 62.58 lakh, of which 50.24 lakh is fully covered while the remaining 12.34 lakh is partially covered.

87. **Transport and Communication** Roads in Uttarakhand are maintained by Public Works Department, BRTF, local bodies (district panchayats and urban local bodies), and other departments (irrigation, cane development, forest, and others). As of 2010, 745.56 km roads are maintained by district panchayats and 1,928.48 km by urban local bodies. Postal

and communication services in Uttarakhand include post offices, telephone exchanges, telegraph offices, public calling offices, landlines, and mobile providers.

Tourism

88. In Uttarakhand, tourism is the most important activity in the non-farming sector. The aesthetic appeal of the land and the socio-cultural heritage of the state present it with immense potentialities for tourism development. The state is replete with religious and mythological sites that are a rich legacy of the cultural past. The state has always attracted tourists on pilgrimage; in fact, the land is often referred to as the land of the divine – *Dev Bhumi*. The tourism industry is a major contributor to the economy of Uttarakhand. According to statistics maintained by the Tourism Board, the estimated tourist visits in Uttarakhand during 2006 were about 18.99 million by domestic tourists and 0.1 million by foreign tourists.

89. The pilgrim towns of Haridwar and Rishikesh draw the maximum number of visitors anywhere in the world. Other pilgrim destinations in the state are Badrinath, Kedarnath, Gangotri, and Yamunotri. Though pilgrimage accounts for the biggest segment, the state is blessed with enormous resources for cultural, adventure, wildlife, nature and leisure tourism, and a wide variety of entertainment and sporting activities, which attracts the domestic as well as foreign tourists.

90. There are many ancient temples, forest reserves, national parks, hill stations, and mountain peaks that draw large number of tourists. There are 44 nationally protected archaeological monuments in the state. Gangotri (in Gomukh) and Yamunotri, the origins of the Ganga and Yamuna, respectively, fall in the upper reaches of the state and together with Badrinath (dedicated to Lord Vishnu) and Kedarnath (dedicated to Lord Shiva). Haridwar, meaning "Gateway to God", is a prime Hindu destination. Uttarakhand is, however, a place of pilgrimage not only for the Hindus. Hemkund, nested in the Himalayas, is a prime pilgrimage center for the Sikhs. Tibetan Buddhism has also made itself felt with the reconstruction of Mindroling Monastery and its Buddha Stupa. Some of the most famous hill stations in India are in Uttarakhand such as Mussoorie, Nainital, Dhanaulti, Lansdowne, Sattal, Almora, Kausani, Bhimtal, and Ranikhet. The state has 12 National Parks and Wildlife Sanctuaries which cover 13.8 percent of the total area of the state. They are located at different altitudes varying from 800 to 5400 meters. The oldest national park on the Indian sub-continent, Jim Corbett National Park, is a major tourist attraction. In addition the state boasts Valley of Flowers National Park and Nanda Devi National Park in Chamoli District, which together are a UNESCO World Heritage Site. Vasudhara Falls, near Badrinath is a waterfall with a height of 122 metres set against a backdrop of snow-clad mountains. Due to its proximity to the Himalaya ranges, there is a plethora of hills and mountains and is suitable for adventure tourism, trekking, climbing, skiing, camping, rock climbing, and paragliding.

91. The unplanned growth of places as centers of tourism has had a severe and negative impact on the environment. The inflow of tourists puts tremendous pressure on existing resources and infrastructure. In year 2010, Uttarakhand received as many as 311.08 lakh tourists – about 300% of the population of the state. Table 5 shows the tourism-relevant information for Uttarakhand.

Table 5: Tourist arrival in the Country and the State of Uttarakhand

State/Country	2008		2009		2010	
	Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
Uttarakhand	2,05,46,323	99,910	2,19,34,567	1,06,470	3,02,06,030	1,27,258
All India	56,29,82,298	1,41,12,590	65,00,38,673	13,71,7522	74,02,14,297	17,85,2777
Uttarakhand % Growth			6.8	6.6	37.7	19.5
All India % Growth			15.5	-2.8	10.7	24.2
Share of Uttarakhand to India (%)	3.6	0.7	3.4	0.8	4.1	0.7

Source: India Tourism Statistics, 2009 and 2010

The key tourist destinations in the state are given in Table 6.

Table 6: Key Tourist Destinations in Uttarakhand

Themes/Activities	Destinations
Hill Stations	Abbott Mount, Almora, Auli, Bhimtal, Bhowali, Chakrata, Chamba, Champawat, Chaukori, ChoptaDhanaulti, Dharchula, Didihat, Dwarahat, Gangolihat, Gwaldam, Harsil, Jeolikot, Kanatal, Kausani, Khirsu Lansdowne, Lohaghat, Mukteshwar, Munsiyari, Mussoorie, Nainital, Naukuchiatal, Pangot, PatalBhuvaneshwar, Pauri, Pithoragarh, Ramgarh, Ranikhet, Sattal, TehriGarhwal, Uttarkashi
Wild Life (Sanctuaries and National Parks)	Binsar, Jim Corbett, Rajaji and Ramnagar
Adventure (Trekking/Paragliding)	Auli, Barkot, Bedni Ali Bugyal, Bhojbasa, Chandrashila, Chopta, Dayara, Bugyal, Deoria Tal, Dodital, Gandhi Sarovar, Gangnani, Ghangaria, Ghuttu, Govindghat, Hanuman Chatti, Har Ki Doon, Hemkund Sahib, Kalpeshwar, Kedar Tal, Kedarnath, Madmaheshwar, Milam Glacier, Mori Munsiyari, Pindari Glacier, Roopkund, Rudranath, Sunderdhunga Glacier, Tungnath
Pilgrimage	AdiKailash, Almora, Augustmuni, Badrinath, Devprayag, Dwarahat, Gangnani, Gangolihat, Gangotri, Gaurikund, Ghangaria, Guptkashi, Hanuman Chatti, Haridwar, Hemkund Sahib, Jageshwar, JankiChatti, Joshimath, Kalpeshwar, Karnaprayag, Kedarnath, Madmaheshwar, Nanakmatta, Patal, Bhuvaneshwar, Rudranath, Rudraprayag, Tungnath, Ukhimath, Yamunotri

Factors impeding growth of tourism sector in the state are-

- Limited Private Sector Participation: Private sectors can significantly contribute for the development of tourism; moreover hardly community involvement has been looked for.
- Weak Institutional Capacity: For Tourism Planning; Heritage Site Management; O&M; Marketing; Partnering with community and Private Sectors; Monitoring and Evaluation.

- High cost for difficult but attractive hilly terrains: Hilly and mountainous areas involve more costs for developmental activities.

Physical Resources

Air and Noise Quality

92. The air pollution level in the proposed locations is well within the permissible limits because of the absence of background sources of pollution. There are no major sources of pollution like industries in the region. Ambient Air Quality measurements shall be carried out at all the 20 locations by the DBOT Contractor during the construction period.

93. Ambient noise scenario in the proposed locations is also quite low because of the absence of any major noise generating sources. The noise either at point or nonpoint sources is not expected in the project area. The project activities during construction will generate noise and the DBOT contractor will carry out monitoring at all the 20 locations during construction period.

94. During the construction period (which is very less in this subproject), a temporary increase in the noise levels are expected as there will be movement of construction machineries and construction activities to be done in the proposed site. Suitable noise barriers in the form of temporary enclosures and timely scheduling of construction activities will help minimize these effects better.

Surface water and Ground water

95. The subproject, is not anticipated to impact any water source, surface or ground because the components are proposed in the land of Dept. Of Tourism, within existing TRH premises which already have proper water supply provisions and sewage and sanitation arrangements.

IV. Environmental Impacts and Mitigation Measures

96. The assessment for environmental impacts due to the implementation of the "Establishment of Tourist Inflow Management System in Uttarakhand" has been carried out for identifying the potential impacts that might arise during the following stages of project planning and implementation.

97. In the case of this subproject (i) most of the individual components are not significant from the point of environmental impact potential (ii) the only predicted impacts are associated with the construction process during the construction of registration kiosks and are (iii) relatively very small and involve straightforward construction and operation, so impacts will be mainly localized; (iv) mostly being located in the built-up areas of these locations (as an extension to the existing TRH buildings, subject to reassessment by DBOT Contractor) will not cause direct impact on biodiversity values (v) The subproject will be in properties held by the local government and access to the sub projects locations is through public ROW and existing roads.

- (i) **Location impacts:** Impacts associated with site selection, including impacts on environment and resettlement or livelihood related impacts on communities;
- (ii) **Design impacts and Pre-Construction Impacts:** Impacts arising from project design, including the technology used, scale of operations, discharge standards, topographic survey, geotechnical survey, etc.;
- (iii) **Construction impacts:** Impacts resulting from construction activities including site clearance, earthworks, civil works, etc.; and
- (iv) **Operation and Maintenance impacts:** Impacts associated with the operation and maintenance of the infrastructure built in the project.

98. Impact identification, screening for significance, and recommended mitigation measures for the sub-project were guided by the use of ADB Rapid Environmental Assessment Checklist for Urban Development and standard environmental monitoring plan required for ADB Projects. DBOT Contractor shall reassess findings of the REA.

Land Acquisition and Resettlement Impacts

99. The proposed locations for construction of kiosks are within the existing TRHs of the Dept. of Tourism, Govt. of Uttarakhand. There are no impacts envisaged on land acquisition or resettlement due to the proposed sub project.

A. Location Impacts

100. It is not likely to have any location specific impacts either on environment or resettlement/ livelihood related issues. This is limited due to the nature of works proposed in the sub project. No significant impacts can arise due to project location as the sites involving the project components do not pass through/ near any environmentally sensitive areas or any cultural / historical areas, etc.

101. The land requirement for the registrations kiosks to be created at 20 locations is 400 sq feet (individual location). This land belongs to Dept. of Tourism, Government of Uttarakhand.

B. Design and Pre-Construction Impacts

102. Impacts arising from the inappropriate designs of proposed facilities would in general be limited to those arising from the inadequate contemporary designs which are provided in order to coordinate with the existing design feature. This shall be addressed through adoption of sound design criteria so as to avoid impacts on the aesthetics of the site

C. Construction Impacts

103. There are very few construction related impacts associated with the implementation of the sub project. Here, construction is limited to kiosks/ registration counters on 400 sq feet land. The impacts include:

104. **Noise and Vibration:** During construction phase, some noise will be generated from the various construction activities like equipment and vehicles engaged in transportation of construction materials. However, transportation of construction materials will be very limited due to the extent of construction activity. The noise associated with the equipment shall be reduced with the application of the lubricant. The increase in noise levels is expected to be between 5 - 10 %. However, these noise levels will be confined to the work sites only and will be temporary in nature and also short duration as well.

105. **Air Quality:** The proposed activity will not affect the air quality of the project area. Generation of dust is anticipated during transportation, excavation and construction activities particularly during earthworks. However, transportation of construction materials will be very limited due to the magnitude of civil works. Therefore, impact at this stage will be temporary and restricted to the close vicinity of the construction activities only.

106. All vehicles and construction equipment operating at the time of construction, the contractor will obtain and maintain "Pollution under Control" (PUC) Certificates. To control dust emissions, vehicles deployed for construction material shall be covered with tarpaulins to be spillage proof. Regular sprinkling of water during loading, unloading, vehicular movement and raw material transport, shall be made for the entire construction period.

107. Ground water will not be used for construction purposes and the problem of ground water contamination is not anticipated during the construction phase.

108. Periodic air quality monitoring to ensure emissions comply with standards will be conducted.

109. The construction activity will be carried out in the existing TRH campus, away from environmentally sensitive areas. Therefore, no adverse impact on fauna and flora is anticipated due to the proposed activity.

110. **Construction Waste:** The Contractor would dispose waste as per norms and directions to the satisfaction of the Environment Expert of the DSC.

111. The clean-up and restoration operations are to be implemented by the contractor prior to demobilization. The contractor will clear all temporary structures such as construction office and dispose off all garbage. All construction zones used/affected by the sub-project will be left clean and tidy, at the contractor's expense as per the satisfaction of the DSC Environment Expert.

112. The Contractor is likely to engage local labour for the construction activities. The contractor has to provide all basic amenities to the labour such as potable drinking water supply and sanitation facilities.

D. Operation Impacts

113. No adverse impacts are envisaged during the implementation of the subproject. Rather, the system will encourage carrying capacity based tourist flow regulation in the environmentally sensitive locations and management of database of tourists visiting the state, which is lacking at present. This would be of utmost importance during any calamity, which is not unlikely in the disaster prone state.

114. Positive impact is also anticipated in terms of employment opportunity as many skilled, semi-skilled and un-skilled personnel will get direct and indirect employment during construction and implementation phase. This can be considered a long-term cumulative benefit of the subproject.

E. Summary of Environmental Impacts And Mitigation Measures

115. Screening of environmental impacts is based on the magnitude and duration of the impact. The subproject alignment is located sufficiently away from habitat and the components proposed will not impact any environmentally sensitive or protected areas. Improvements are proposed within available government lands and existing right-of-way. Major impacts anticipated during the construction phase which is also relatively insignificant due to the magnitude of civil works involved in construction of kiosks of 400 sq feet at 20 locations. Mitigation measures and impacts listed above forms part of the EMP, which shall be inserted in the bidding document.

V. Environment Management Plan

Institutional Requirements And Environment Monitoring Plan

A. Institutional Arrangements

116. The Government of Uttarakhand through Department of Tourism (DOT) is the Executing Agency (EA). The EA (i) assumes overall responsibility for the execution of the Project and reporting; (ii) engage adequate permanent or fixed-term staff to implement the Project; (iii) setup a state-level project management unit (PMU) and project implementation units (PIU); (iv) provide overall strategic guidance on technical supervision and project execution; and (v) ensure overall compliance with the loan covenants.

117. The implementing agency (IA) is the Uttarakhand Tourism Development Board (UTDB). The IA's responsibilities include (i) project planning and budgeting; (ii) day-to-day assistance, supervision and guidance for the project implementation units and their consultants; (iii) review subprojects for due diligence requirements and approve subproject proposals; (iv) bidding, evaluation and contract award; (v) managing and disbursing funds; (vi) review compliance with loan covenants, contract specifications, work plans and quality control; and (vii) consolidate and submit progress reports, finance and accounting / audit reports, and matters requiring higher level decision to state-level empowered committee (SLEC) and ADB.

118. A State-level empowered committee (SLEC) has been established in Uttarakhand, chaired by state's Chief Secretary, with Principal Secretary/Secretary of the Department of Tourism as member secretary and comprised of secretaries from relevant line departments. The SLEC have been empowered to take all decisions on behalf of the State and will (i) act as a policy making body, (ii) provide overall advice and guidance to the State's executing agency and PMU, and (iii) accord all approvals under the Project.

119. DoT has established a PMU, headed by a full-time program director (PD), and consisting of personnel drawn from relevant line departments and market. The PMU is the nodal agency for overall management of all program activities and will be responsible for: (i) project planning and budgeting; (ii) providing day-to-day assistance, supervision and guidance for the PIUs and their consultants; (iii) reviewing subprojects to satisfy ADB's due diligence requirements and approving subproject proposals submitted by PIU and line departments; (iv) bidding, evaluation and contract award; (v) managing and disbursing funds; (vi) reviewing compliance with loan covenants, contract specifications, work plans and quality control; (vii) consolidating and submitting progress reports, finance and accounting/audit reports, and matters requiring higher-level decision, to the SLEC and ADB. The PMU will be supported by a team of consultants.

120. The sub-project will be implemented by the Project Implementation Unit (PIU) of IA, i.e. UTDB, comprising of personnel drawn from relevant line departments and outside of government and will be headed by a Project manager. The PIUs will be responsible for: (i) prioritizing and preparing subproject proposals; (ii) providing day-to-day assistance, supervision and guidance to the design and supervision consultants; (iii) conducting detailed assessments and surveys including public consultation and input from stakeholders; (iv) preparing detailed designs, specifications, schedule of quantity, bidding documents, and related documentation; (v) implementing civil works and related activities; (vi) reporting to PMU; (vii) preparing regular progress reports for the SLEC, the executing agency and ADB through PMU; and (viii) supervising construction, conducting quality control, approving

progress payments to contractors; and (ix) maintaining records and accounts on an up-to-date basis and making these available to ADB, its missions, or auditors for inspection.

121. The Project Management Consultant (PMC) has been engaged to provide support to the PMU in overall planning, risk management, implementation, monitoring and evaluation of projects under the Investment Program. The PMC also assists the PMU and PIUs in meeting the relevant requirements of ADB, Government of Uttarakhand, and Government of India for project implementation. The PMC reports and works under the overall guidance of the PMU. The scope of services of the PMC includes but not necessarily be limited to: (i) planning, reporting, and communication; (ii) establishment of procedures and systems; (iii) review and preparation of plans, manuals and reports; (iv) overall Investment Program management, monitoring and implementation of PPMS; and (v) social, environmental, archaeological, occupational health and safety, community participation and gender action compliance monitoring.

122. The Design and Supervision Consultant (DSC) has been engaged to provide all necessary support to and coordination with the EA, IAs, PMU and any other consultants engaged by the authorities to achieve the desired outcomes of the Investment Program. The DSC reports to and work under the overall guidance of the PIUs. The scope of services of the DSC includes but not necessarily be limited to: (i) surveys, verification of feasibility studies and base maps; (ii) project planning and management support to the PIU; (iii) finalization of design criteria, preparation of manuals, guidelines and systems; (iv) preparation of detailed design and bid documents; (v) construction management and contract administration; (vi) environmental, social, archaeological, cultural heritage, community participation and gender action compliance monitoring; and (vii) capacity building of the service providers for operational sustainability.

123. As per DBO contract Environment officer of Contractor will be responsible for updation of IEE, if required and field implementation of EMP. DSC's Environment Specialist will advise contractor's Environment Officer during updation of IEE and field implementation of EMP. DSC's specialist will oversee implement and monitor safeguards compliance activities, public relations activities, gender mainstreaming activities and community participation activities. DSC's specialist will do field monitoring and advise contractor for additional/ rectification of mitigation measures as per ground condition. DBO contractor will be responsible for obtaining statutory clearances and obtaining NOCs from government agencies /other entities. PMU/PIU/DSC will assist contractor in this aspect.

124. Environment Specialists are appointed as part of the DSC teams to (i) assist contractor for updation of IEE in the detailed design stage; (ii) assist contractor in the monitoring of EMP during construction stage; and (iii) prepare EIAs/IEEs for new subprojects, where required to comply with national law and/or ADB procedure.

B. Environmental Management

125. The Environmental Management Plan (EMP) translates recommended mitigation and monitoring measures into specific actions that will be carried out by the contractor and proponent. EMP deals with the management measures and implementation procedure of the guidelines along with enhancement measures recommended to avoid, minimize and mitigate foreseen environmental impacts of the project. For each mitigation measure to be taken, its location, timeframe, implementation and overseeing/ supervising responsibilities are listed in the EMP. **Table 7** presents a generic EMP to guide the contractor in mitigating environmental impacts.

Table 7: EMP to guide the contractor in mitigating environmental impacts

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
Construction Phase					
1.	Stockpiling of construction materials	Temporary	Moderate	Stockpiling of construction materials does not impact obstruct the drainage and Stockpiles will be covered to protect from dust and erosion.	DBOT Contractor / DSC
2.	Generation of dust	Temporary	Moderate	The contractor will take every precaution to reduce the levels of dust at construction sites. Water sprinkling will be carried out on haul roads. All earthworks to be protected/ covered in a manner to minimize dust generation.	DBOT Contractor / DSC
3.	Air Pollution	Temporary	Moderate	The contractor will take every effort and precaution to reduce any air pollution on account of construction activities/ machinery/ vehicles Regular Water sprinkling will be carried out and All earthworks will be protected/ covered All machinery/ vehicles will have valid puc certificates and will be regularly checked.	
4.	Noise Pollution	Temporary	Moderate	Noise limits for construction equipment used in this project will not exceed 75 dB (A). There shall be regular monitoring for noise at camp and construction sites.	DBOT Contractor / DSC
5.	Disposal of Construction Waste / Debris / Cut Material	Temporary	Moderate	Safe disposal of the construction waste will be ensured in the pre-identified disposal locations. In no case, any construction waste	DBOT Contractor / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				will be disposed around the project site indiscriminately.	
6.	Drinking water availability for workers	Temporary	Major	Sufficient supply of cold potable water to be provided and maintained. If the drinking water is obtained from an intermittent public water supply then storage tanks will be provided.	DBOT Contractor / DSC
7	Site clearance activities, including delineation of construction areas	Temporary	Moderate	<p>The commencement of site clearance activities will be undertaken with due permission from the Environment Specialist of the DSC consultant to minimize environmental impacts.</p> <p>All areas used for temporary construction operations will be subject to complete restoration to their former condition with appropriate rehabilitation procedures. Pre construction photographs will be taken for all temporary sites to be acquired for completion of construction. The temporary sites will be acquired by contractor for construction camp, workers; camp, storage sites for construction materials, etc.</p>	DBOT Contractor / DSC
8	Emission from Construction Vehicles, Equipment and Machinery	Temporary	Moderate	Vehicles, equipment and machinery used for construction will conform to the relevant Standard and will be regularly maintained to ensure that pollution emission levels comply with the relevant requirements.	DBOT Contractor / DSC
9	Safety Measures During Construction	Temporary	Moderate	<p>Adequate safety measures for workers during handling of materials at site will be taken up.</p> <p>The contractor has to comply</p>	DBOT Contractor / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				with all regulations for the safety of workers, including complete use of PPEs. Precaution will be taken to prevent danger of the workers from fire, etc. First aid treatment will be made available for all injuries likely to be sustained during the course of work. The Contractor will conform to all anti-malaria instructions given to him by the Engineer.	
10	Clearing of Construction Sites and Restoration	Temporary	Major	On completion of the works, all temporary structures will be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the Contractor's expense, to the entire satisfaction of the Engineer	DBOT Contractor / DSC

C. Environmental Monitoring Plan

126. The proposed sub project does not require Environmental Monitoring, owing to the nature and magnitude of the civil works involved. However, in order to have a closer look at the existing environment during construction activity, a monitoring plan has been framed for construction phase. The monitoring shall be performed by the DBOT Contractor and subsequently monitored by the DSC.

Table 8: Monitoring Plan

Sl. No.	Attributes	Parameters to be Monitored	Standards	Frequency	Location	Responsibility
1	Ambient Air Quality	CO, NOx, PM10, PM2.5, and SO ₂	CPCB/ UEPPCB guidelines	Once in a season in the entire construction period (except monsoons)	At two locations in the construction site	DBOT Contractor, DSC (supervision) through approved Monitoring Agency

3	Noise Levels	Noise quality as per National Ambient Noise Standards on db (A) scale	MOEF Noise Rules 2000	Once in every three months (Except monsoon) during construction and operation stages	At two locations in the construction site	DBOT Contractor, DSC (supervision) through approved Monitoring Agency
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D. Capacity Building

127. The Environmental Specialist of PMC and DSC will provide the basic training required for environmental awareness. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Program and the requirements of the project. The training would cover basic principles of environmental assessment and management; mitigation plans and programs, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in **Table 9** below.

Table 9: Training Modules for Environmental Management

Program	Description	Participants	Duration	Training Conducting Agency
A. Pre-Construction Stage				
Sensitization Workshop	Introduction to Environment: Basic Concept of environment Environmental Regulations and Statutory requirements as per Government of India and ADB	Tourism / Forest Department Officials, Project Director (PD) and Environmental Specialist (ES) of the PMU/PIU	½ Working Day	Environmental Specialist of the PMC
Session 1	Introduction to Environment: Basic Concept of environment Safeguards Regulations and Statutory requirements as per Govt of India and ADB Guidelines on Environmental considerations in planning, design and implementing projects	PMU/PIU (including the ES) and Engineering staff of the implementing agencies	¼ Working Day	Safeguards Specialist of the PMC
Session 2	Environmental Management, Environmental Provisions, Implementation Arrangements, Methodology of Assessment Good engineering practices to be integrated into contract documents	PMU/PIU (including the ES) and Engineering staff of Tourism dept	¼ Working Day	Safeguards Specialist of the PMC

Program	Description	Participants	Duration	Training Conducting Agency
B. Construction Stage				
Session 3	Role during Construction- Roles and Responsibilities of officials / contractors / consultants towards protection of environment Implementation. Arrangements Monitoring mechanisms	Engineers and staff of line departments of the Government of Uttarakhand, and PMU/PIU (including the ES)	¼ Working Day	Safeguards Specialist of the DSC
Session 4	Monitoring and Reporting System	Engineers and staff of implementing agencies, and PMU/PIU (including the ES)	¼ Working Day	Safeguards Specialist of the DSC

Notes: PMU = Project Management Unit; PIU = Project Implementation Unit; PMC = Project Management Consultant; DSC = Design and Supervision Consultant; ES = Environment Specialist; NGO – nongovernment organization

E. Environmental Budget

128. Most of the mitigation measures require the contractors to adopt good site practice, which should be part of their normal procedures already, so there are unlikely to be major costs associated with compliance. Only those items not covered under budgets for construction are included in the IEE budget. The IEE costs include mitigation, monitoring and capacity building costs. The summary budget for the environmental management costs for the subproject is presented in **Table 10**.

Table 10: Environmental management and monitoring costs (INR)

Item	Rate per sample	Total Cost (INR)	Source of funds
Environmental Monitoring			
Construction Phase			
Air Quality (20x2 locations; Total 40 samples)	7500	3,00,000.00	DBOT Contractor
Noise Quality (20x2 locations, Total 40 samples)	2500	1,00,000.00	
Capacity Building Expenses (5 Sessions in project life)	90000	4,50,000.00	PMU/ DSC
Total Cost		8,50,000	

F. Environmental Monitoring and Reporting

129. The PMU will monitor and measure the progress of EMP implementation. PIU will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome. DSC will submit monthly monitoring and implementation reports to PIU, who will take follow-up actions, if necessary. PIU will submit quarterly monitoring and implementation reports to PMU. The PMU will submit semi-annual monitoring reports to ADB. Monitoring reports will be posted in a location accessible to the public.

130. ADB will review project performance against the EA's commitments as agreed in the legal documents. The extent of ADB's monitoring and supervision activities will be commensurate with the Project's risks and impacts. Monitoring and supervising of social and environmental safeguards will be integrated into the project performance management system. ADB will monitor projects on an ongoing basis until a project completion report is issued.

VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. Consultation Process

131. This subproject does not involve any elements, which could have an adverse impact on the community. There is no deprivation of any sort for the residents or displacement of any groups. Particularly, with regard to environmental impacts the subproject can be characterized as innocuous. In view of this, the need for holding a public hearing is not perceived at this stage.

132. During the Project preparation consultations were held with the Dept. of Tourism, Uttarakhand, State Forest Department, State Administration, District Adventure Tourist Officers, and Tourists on issues pertaining to the identification of key issues and current gaps in tourist database management and regulatory system in the State. The sub project has been conceived and planned in light of experiences from the tragedy that struck the state during monsoons of 2013, which coincided with peak pilgrim season. Need of tracking system was also emphasized by the media reporting during the tragedy. The sub project is in state interest and a necessity for carrying capacity based tourist flow management in the environmentally sensitive tourist destinations of the state. The system, once operational would increase climatic resilience of the tourism sector and enhance safety and security of the tourists.

Plans for Continued Public Participation

133. The public consultation shall be a continuous process and will continue in future also. DBO contractor will do the public consultation and focus group discussion during updation of IEE. DSC/ PIU will advice contractor the requirement and methodology. The PMU/PIU will extend and expand the consultation and disclosure process during implementation. An experienced NGO will be appointed to handle this key aspect of the program, who will conduct a wide range of activities in consultation with contractor/ PIU/DSC in relation to all subprojects, to ensure that the needs and concerns of stakeholders are registered, and are addressed in project design, construction or operation where appropriate. The stakeholders will be fully engaged in the subproject and have the opportunity to participate in its development and implementation.

134. To ensure continued public participation, provisions to ensure regular and continued stakeholder participation, at all stages during the project design and implementation is proposed. A grievance redressal cell within the PIU shall register grievances of the people regarding technical, social and environmental aspects. This participatory process will ensure that all views of the people are adequately reviewed and suitably incorporated in the design and implementation process. Further, to ensure an effective disclosure of the project proposals to the stakeholders and the communities in the vicinity of the subproject location, extensive project awareness campaigns will be carried out.

B. Future Consultation And Information disclosure

135. Electronic version of the updated IEE will be placed in the official website of the Tourism Department and the website of ADB after approval of the documents by Government and ADB. On demand, any 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.

136. 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 dates, etc. The notice will be issued by the PMU in local newspapers one month ahead of the implementation works. This will create awareness of the project implementation among the public.

C. Grievance Redress Mechanism

137. 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 implementing NGO who can resolve the issue at site level. If the matter is not solved within 7 days period by the NGO or 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.

138. 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.

Composition and functions of GRC

139. **Local Grievance Committee.(LGC)** – The local LGC will comprise of an NGO representative, Line Agency, representative of Gram Panchayat ,Special invitee.

140. **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 Uttarakhand, 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.

141. **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).

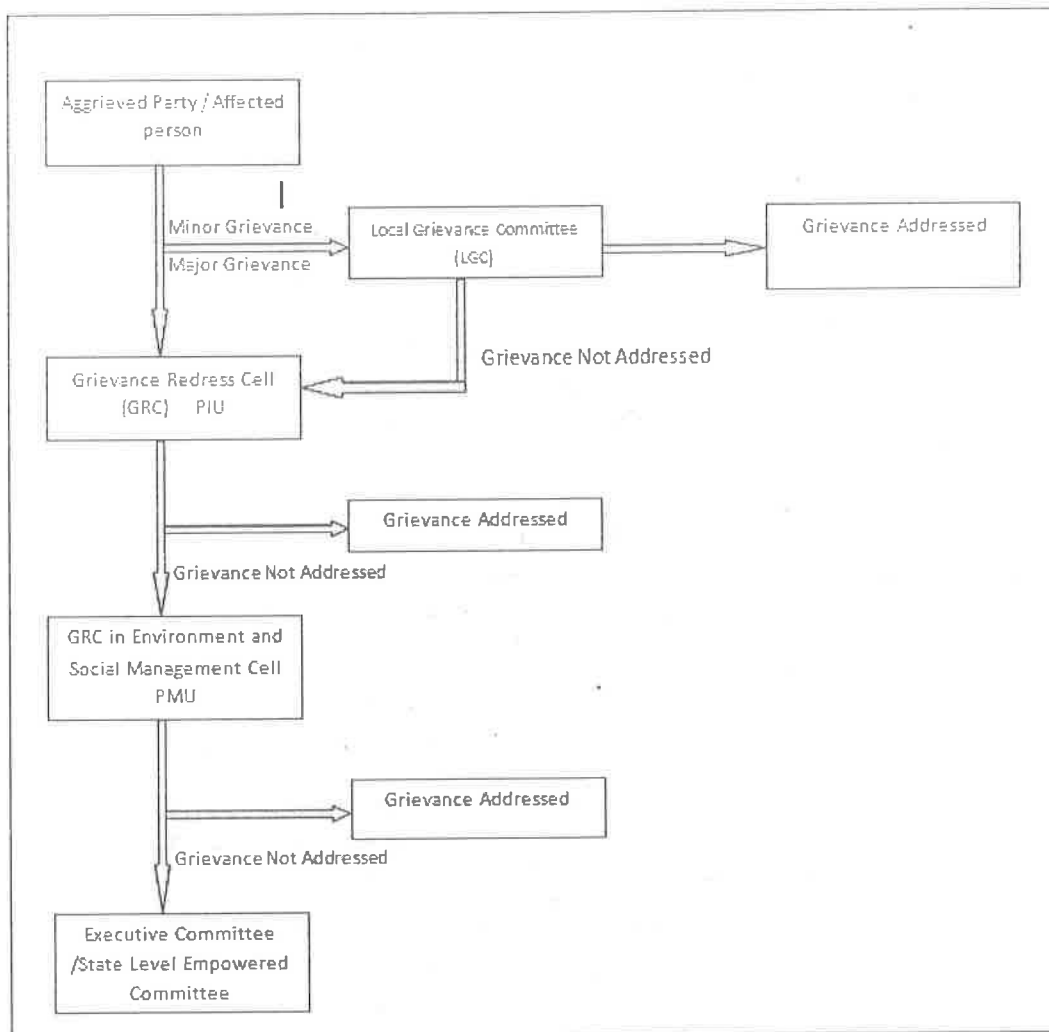
Approach to GRC

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

- (a) 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.
- (b) 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.
- (c) Through implementing NGO: The local representative of the NGO appointed for the purpose will collect the problems & issues of the community or affected person and pass on the same to PIU / PMU.

Figure 12: Grievance Redress Mechanism in IDIPT, Uttarakhand

GRIEVANCE REDRESS MECHANISM (IDIPT-Uttarakhand)



Note:

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

VII. FINDINGS AND RECOMMENDATIONS

143. The proposed subproject components do not involve any interventions in and around the natural and cultural heritage destinations and have insignificant (direct/indirect) environmental impacts. It is expected that the proposed subproject will promote environmentally sustainable tourism in the state leading to enhanced economic growth and provision of livelihood opportunities for local communities through tourism.

144. The proposed component of the subproject is planned to be developed within the existing TRHs of the Department of Tourism. Hence, the land acquisition and R&R issues are not envisaged. There are no significant environmental impacts at any stage of the project but for a few construction related impacts which may arise, if not properly managed. For the identified construction impacts, separate EMP table is enclosed.

145. 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 PMC and DSC Consultants. Further, the environmental monitoring plans provide adequate opportunities towards course correction to address any residual impacts during construction or operation stages.

146. On the basis of the IEE It is expected that the proposed project components have only minor, localized, temporary and less significant environmental impacts. These impacts can be easily mitigated through adequate mitigation measures and regular monitoring during the design and construction phase of the project.

VII. CONCLUSIONS

147. The proposed Investment Program of **“Development of Tourism Safety & Management System”** can be done without any major environmental impacts and is beneficial to the state and tourists from all over visiting the state.

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

Annexure- 1

Rapid Environmental Assessment (REA) Checklist

Country/Project Title: IDIPT (UK) - India/ Infrastructure Development Investment Program for Tourism Project II Uttarakhand

Sub-Project : Development of Tourism Safety & Management System in Uttarakhand

Sector Division : SAUD

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	√		There are many cultural properties spread across Uttarakhand. The Subproject will help in preventing ecological losses to the Sites of Cultural importance, which are both sensitive and overburdened, by putting a mechanism for tourist carrying capacity based regulatory system, in place.
PROTECTED AREA	√		The subproject is proposed for the entire state including the protected areas like Corbett National Park and Tiger reserve, which will be benefitted by implementation of the subproject. No adverse impacts are envisaged due to any activity in the sub project.
WETLAND		√	Rivers of religious importance like Ganga and Yamuna originate from Uttarakhand but the subproject will have a good impact on preservation of these water bodies.
MANGROVE		√	Not applicable
ESTUARINE		√	Not applicable

BUFFER ZONE OF PROTECTED AREA	√		The subproject is proposed for the entire state and protected areas like Corbett National Park and Tiger reserve will also be benefitted by implementation of the subproject
SPECIAL AREA FOR PROTECTING BIODIVERSITY	√		<p>The subproject is proposed for the entire state and protected areas like Corbett National Park and Tiger reserve will also be benefitted by implementation of the subproject.</p> <p>No adverse impacts on these protected areas are envisaged due to any activity proposed in the sub project.</p>
BAY		√	Not applicable
B. POTENTIAL ENVIRONMENTAL IMPACTS WILL THE PROJECT CAUSE			
Encroachment on historical/cultural areas?		√	
Encroachment on precious ecology (e.g. sensitive of protected areas)		√	
Impacts on the sustainability of associated sanitation and Solid Waste disposal system?		√	
Dislocation or involuntary resettlement of people?		√	
Disproportionate impacts on the poor, women and children indigenous peoples or other vulnerable groups?		√	
Accident risks associated with increased vehicular traffic, leading to loss of life?		√	

Increased noise and air pollution resulting from increased traffic volume?		√	Rather the sub project will support carrying capacity based regulation of traffic volume occurring during peak tourism seasons, thereby helping in reduction of noise and air pollution from traffic.
Occupational and community health and safety risks?		√	The sub-project will enhance the emergency preparedness of the state thereby reducing risks to tourists safety due to natural calamities
Risks and vulnerabilities related to occupational health and safety due to physical chemical, biological and radiological hazards construction and operation		√	
Generation of dust in sensitive areas during construction.	√		Envisaged during the minor construction activities, since construction involves only installation of prefabricated structures in kiosks at 20 locations of the Dept. Of Tourism in the state. Adoption of the mitigation measures shall effectively address such impacts during construction
Requirements for disposal of fill, excavation, and/or spoil materials?	√		
Noise and vibration due to blasting and other civil works?		√	
Noise and vibration due to blasting and other civil works?		√	
Long term impacts on ground water flows as result of needing to drain the project site prior to construction.		√	
Long term impacts on local hydrology as a result of building hard surfaces in or near the building?		√	
Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation system.		√	

Social conflicts of workers from other regions or countries are hired?		√	Not anticipated as preference to the local workers shall be given. Construction activity is confined to 20 no. of kiosks at 20 locations (pre-fabricated structures) of 400 sq feet area which doesn't require setting of labour camp/ hiring of a number of workers.
Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?		√	
Risks to community health and safety caused by management and disposal of waste?		√	
Community 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		√	

Climate Change and Disaster risk questions			
The following questions are not for environmental categorization. They are included in this checklist to help identify potential climate and disaster risks.			
Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate	√		Uttarakhand, as whole is sensitive to natural calamities, like landslides, cloudbursts especially during the monsoon season.
Could changes in, temperature, salinity, or extreme events over the Project lifespan affect its sustainability or cost?		√	

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Are there any demographic or socio-economic aspects the Project area that are already vulnerable (e.g. high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children.		√	
Could the Project potentially increase the climate or disaster vulnerability of the surrounding area (e.g., increasing traffic or housing in areas that will be more prone to flooding, by encouraging settlement in earthquake zones?		√	Project shall strengthen the disaster preparedness of the state

Annexure 2

Compliance with EARF

Component	Criteria	Compliance
Overall selection criteria	1. Will be fully consistent with management plans or master plans for the area	The sub project has been conceived in view of tourist safety and sustainable tourism in sensitive Uttarakhand state. Tourist Registration Kiosks (pre fabricated structures) of 400 sq feet area will be constructed at 20 locations in the existing Tourist Rest Houses in the entire state.
	2. Will avoid resettlement/relocation. If unavoidable the extent of resettlement will be minimized.	No such impact anticipated
	3. Will not result in destruction of or encroachment onto protected areas, including National Parks, Sanctuaries, Conservation Reserves and Community Reserves, environmentally sensitive zones and Biosphere reserves.	No environmentally sensitive zones to be impacted, sub project sites being proposed in own land, within premises of existing TRHs.
	4. Will be in line with the Conservation Plan/management plan for the conservation and management of the Protected areas	Not applicable
	5. Will promote tourism related activities in protected areas, in the zones earmarked for tourism development, the scale and extent of which shall be in line with the provisions in the Management Plan	The sub project will promote carrying capacity based tourist regulatory system.
	6. Will not result in destruction of or encroachment onto archaeological monuments/heritage sites and will be in line with the master plan proposals for the conservation and preservation of the site/monuments	NA Proposed on own land of the Dept. of Tourism, within premises of existing TRHs
	7. Will not involve major civil works within the prohibited and regulated areas, as defined in the ASI refutations, to minimize any potential impacts on safety to the structures/ monuments	NA Proposed on own land of the Dept. of Tourism, within premises of existing TRHs
	8. Will reflect inputs from public consultation and disclosure for site selection	Project is a priority sub project stressed by the media, general public all alike. It has been conceptualized from the learnings of disaster that struck the state in 2013 and shattered tourism sector as a whole. Meaningful public consultations have been done from planning phase and inputs have been considered in the project design

Component	Criteria	Compliance
	9. Will not introduce any elements or components that are invasive upon the sanctity and significance of the cultural heritage site, including large scale commercial activities or creation of new land uses with potential to trigger induced development and land use changes around the sites	NA The sub project will not introduce any element or components that are invasive upon sanctity of cultural heritage site.
	10. Will introduce landscaping and other tourist infrastructure in line with the environmental quality of the tourist destinations, such as landscaping in harmony with the natural vegetation and diversity and not encourage introduction of species that are invasive	No new/alien species shall be introduced.
	11. Will not result in development of physical infrastructure/ tourism amenities that would impair the environmental conditions due to lack of management capacities or high O&M costs	
	12. Will reflect inputs from public consultation and disclosure for site selection	Inputs from major stakeholders like District Authorities, State Govt. department, NGOs, Hoteliers, Tourists Traders' Association and local population residing close to subproject site have been incorporated in the designs and planning.
Conservation measures and excavation measures-in and around Cultural properties and protected Monuments/ Structures.	13 Will observe the principle of not altering the historic condition and shall involve treatment of damage caused by natural processes and human actions and prevention of further deterioration, using both technical and management measures.	Not Applicable
	14 Will promote in situ conservation and only in the face of uncontrollable natural threats and relocation is the sole means of saving elements of a site may they be moved in their historic condition.	No protected Monument/ cultural heritage site in vicinity, therefore, this is not applicable
	15. Will ensure that intervention be minimal. Every intervention proposed shall have clear objectives and use tried and proven methods and materials.	The sub project works are not close to any protected monuments/structures.
	16. Will ensure that physical remains are conserved in their historic condition without loss of evidence. Respect for the significance of the physical remains must guide any restoration. Technical interventions should not compromise subsequent treatment of the original fabric. The results of intervention	Not applicable

Component	Criteria	Compliance
	should be unobtrusive when compared to the original fabric or to previous treatments, but still should be distinguishable	
	17. Will ensure that the adaptive reuse of any particular building of monuments/structures does not intrude or induce impacts on other areas of the monument	Not applicable
Component	Criteria	
	18. Will ensure preservation of traditional technology and craftsmanship. New materials and techniques may only be used after they have been tried and proven, and should in no way cause damage to site.	Not Applicable
	19. Will ensure that the setting of a heritage site be conserved. Natural and cultural landscapes that form part of a sites setting contribute to its significance and should be integrated with its conservation	Not Applicable
	20. Will ensure that during archaeological excavation care be taken to conserve the physical remains. A practical plan for the conservation of a site-both during and after excavation-should be submitted for all site programmed for excavation	Not Applicable
	21. Will ensure that treatment of the cultural heritage site and its environs is a comprehensive measure to prevent damage from natural processes and human actions, to reveal the historic condition of a site, and to allow its rational use. Service building should be as far as possible from the principal area of the site. Landscaping should aim to restore the site to its historic state and should not adversely affect the site: contemporary gardening and landscape concepts and designs should not be introduced.	Not Applicable
Conservation and habitat protection measures- in and around the natural heritage assets and protected areas.	22. Will observe the principle of not adversely impacting the habitat quality of the protected area and shall involve treatment of damage caused by natural processes and human actions and prevention of further deterioration, using both technical and management measures.	Not Applicable Not near protected area and proposed locations are already existing TRH premises.
	23. Will ensure that intervention, in form of additional civil works within the protected areas, be minimal. Every intervention proposed shall have clear objectives and use	Not Applicable

Component	Criteria	Compliance
	tried and proven methods and materials.	
	24. Will not open up new areas of tourist movement, including opening up of new routes for boating in wetlands etc, especially in areas identified as core or zone identified for conservation in the management plan for the protected area.	The sub project intends to put up a regulatory system in place for carrying capacity based tourist regulation system.
	25. Will ensure that the areas of significant habitat diversity habitats are conserved in their natural condition.	Not Applicable
	26. The results of intervention should be unobtrusive when compared to the original fabric or to previous treatments, but still should be distinguishable	Not Applicable.
	27. New materials and techniques may only be used after they have been tried and proven, and should in no way cause damage to the site.	Not Applicable.
	28. Service buildings should be as far as possible from the principal area of the site.	Not Applicable
Water supply	29. Will be taken up from existing potable treatment systems nearby, unless no such systems are available in the vicinity.	Not Applicable
	30. Will not result in excessive abstraction of ground water or result in excessive groundwater pumping impairing ground water quality	Not Applicable
	31. Will ensure adequate protection from pollution of intake points	Not Applicable
	32. Will not result in unsatisfactory raw water supply (e.g. supply with excessive pathogens or mineral constituents)	Not Applicable
	33. Will ensure proper and adequate treatment and disposal facilitates for increased volumes of wastewater generation	Not envisaged as locations are within the existing TRHs which have adequate sewage and sanitation arrangements.
Sanitation and toilet facilities	34. Will ensure that the site selection for the septic tank/ or any/ or any other treatment method proposed is not close to water intake or water usage points, or areas prone to flooding or water logging	Not envisaged as locations are within the existing TRHs which have adequate sewage and sanitation arrangements.
	35. Will ensure that sanitation improvements proposed do not result in pollution of groundwater.	Not envisaged as locations are within the existing TRHs which have adequate sewage and sanitation arrangements.

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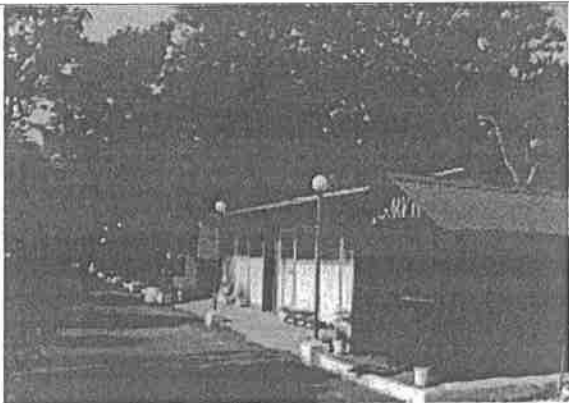





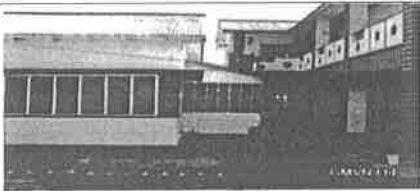
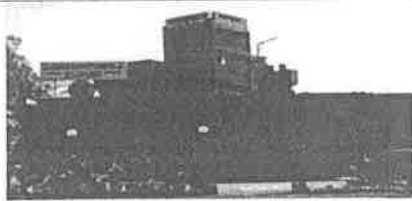
Component	Criteria	Compliance
	36. Will not interfere with other utilities and block access to buildings, cause nuisance to neighbouring areas due to noise, smell, and influx of insects, rodents, etc.	Not envisaged
	37. Will not impair downstream water quality due to inadequate sewage treatment or release of untreated sewage.	Not envisaged
	38. Will not cause overflows and flooding of surroundings, especially around the heritage sites with raw sewage.	Not envisaged
Solid waste management	39. Will ensure that the disposal of solid wastes will not result in degradation of aesthetics in the vicinity of the proposed tourist areas	Mitigation measures for solid waste management during construction have been included in the EMP. Suitable waste disposal arrangements are already in the proposed locations as they are within the existing TRHs.
	40. Will ensure buffer of greenbelt and earth works around the site to avoid nuisance to neighboring areas due to foul odour and influx of insects, rodents, etc.	During construction phase suitable buffer will be provided as per EMMP.
	41. Will ensure that for composting pits for protected areas, the locations are devoid of any wildlife population, especially wild boars, porcupines	Not Applicable
	42. Will ensure any on site waste management done in compliance with government regulations and in coordination with municipal authorities.	It will be ensured
Roads	43. Will ensure minimal clearing of vegetation	Clearing of vegetation is not envisaged. However, if at all required will be done in consultation with the DSC Environment Expert.
	44. Will ensure no dislocation and involuntary resettlement of people living in right of way.	No dislocation and involuntary resettlement envisaged. The alignment is planned on the land owned by the Dept. of Tourism, Government of Uttarakhand.
	45. Will not lead to alteration of surface water hydrology of streams/waterways that may result in increased sediment load due to erosion from construction sites.	No impact on ground and surface water hydrology is envisaged.
Drainage and flood protection	46. Will ensure improvements are identified to cater to the watershed or drainage zones and not individual drains.	No alterations to the existing drainage patterns are expected due to project interventions

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Component	Criteria	Compliance
	47. Will ensure adequacy of outfall of proposed drainage works, to avoid any impacts associated with flooding in downstream areas, or areas not covered	Not Applicable
	48. Will ensure effective drainage of the monument area, and provide for improved structural stability of the monuments	Not Applicable
Development of parking and other tourist infrastructure amenities	<p>49. Will ensure no deterioration of surrounding environmental conditions due to uncontrolled growth around these facilities, increased traffic and increased waste generation resulting from improved infrastructure facilities</p> <p>50. Will not create structures or buildings that are physically or visually intrusive, in terms of size, scale, location that shall have an adverse impact on the aesthetic quality or the site, through careful designs in terms of built form, construction materials etc.</p>	The sub project intends to decongest the already saturated tourist destinations by regulating the tourist inflow based on carrying capacity.

Annexure 3

Site Photographs For Registration Kiosks

	
Asan Barrage, Dehradun	Barkot TRH
	
Bharat Bhoomi Rishikesh	Chamba
	
Dehradun	Ganga Resort, Rishikesh
	
Gwaldam	Haridwar



Jankichatti



Joshimath



Mussoorie



New Tehri



Rudraprayag



Ukhimath



Uttarkashi