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

Asian Development Bank

INRM2/ for Logging in ALZ SM/AJ

Govt. of Uttarakhand

Program Management Unit

Infrastructure Development Investment Program for Tourism
(ADB Assisted – Loan No. 2833, India)
Government of Uttarakhand
Pandit Deendyal Upadhaya Paryatan Bhawan,
Near ONGC Helipad Garhi Cantt, Dehradun -248003
Tel: 91-135-2559987, Fax: 91-135-2559988 E-mail: utdb.pmu@gmail.com

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BRB/SM/GM 22/7

Ref: 2753/2-10-ADB IDIPT/249/2014-15

Date: 16.07.2015

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 Infrastructure In Kartikeya Swami Circuit (Lot-1) (Tungeshwar & Durgadhar Temple)" sub project

Ref: IEE (based on SAR) submitted vide letter no. 1656/2-10-ADB IDIPT/249/2014-15 dt. 24.09.14

Respected Madam,

Kindly refer to the IEE document for "Development of Tourism Infrastructure In Kartikeya Swami Circuit (Lot-1) (Tungeshwar & Durgadhar Temple) " sub project submitted vide this office letter dt. 24.09.14.

Updated IEE document along with change matrix between SAR and DPR stage is submitted for your kind perusal and approval.

Encl.:- As above

Yours Sincerely

(R.K. Joshi)
Additional Program Director

Deviation in Components from SAR to DPR stage

(i) Initially, during the SAR stage the Sub Project was titled "Development of Tourism Infrastructure In Kartikeya Swami Circuit" and it included following scope, for which the initial IEE (based on SAR) was submitted:

Improvement of basic tourist infrastructure facilities at (i) Kartikeya Swami Temple, (ii) Durga dhari Temple and Tungeshwar Mahadev Temple and providing other facilities in consultation with Village Panchayat, Temple Trust/Committees and Forest department and (iii) Construction of tourism interpretation Centre including facilities at Rudraprayag

(ii) Due to location of the Kartikeya Swami Temple in Reserve Forest, it was decided to divide the subproject in 02 packages due to the time taken for Forest Clearance, which is under process. This package was named "Development of Tourism Infrastructure in Kartikeya Swami Circuit (Lot-2) (Kartikeya Swami Temple)".

(iii) The other component Development of Tourism Infrastructure in Tungeshwar & Durgadhari Temple was packaged as "Development of Tourism Infrastructure in Kartikeya Swami Circuit (Lot-1) (Tungeshwar & Durgadhar Temple)".

(iv) The last component "Construction of tourism interpretation Centre including facilities at Rudraprayag" was proposed in the SAR and initial IEE (during SAR stage) but omitted during the DPR stage owing to land issues.

(v) Updated IEE (no major deviation in scope) for "Development of Tourism Infrastructure in Kartikeya Swami Circuit (Lot-1) (Tungeshwar & Durgadhar Temple) "is hereby submitted with following matrix as suggested by ADB vide mail dt. 05.02.15.

Matrix Showing Deviation in Components from SAR to DPR stage

S. No.		Component in SAR Stage	Component in DPR Stage
A	**Durgadhar Temple**		
1	Approach area development and improvement of CC road from main road to temple premises with railing and area before gate.	✓	✓
2	Development of Entrance Gate of the temple at main road.	✓	✓
3	Parking facility and vehicular approach near temple premise.	✓	✓
4	Construction of Retaining walls for pathway of approach to guest house	✓	✓
5	Protection wall for parking area near steps of	✓	✓

	temple.		
6	Providing dustbins etc. for systemizing the solid waste management.	✓	✓
7	Improvement of pathway from main road to temple with local stone and fixing of local stone	✓	✓
8	Railing with railing post	✓	✓
9	Signage Work (20 Signage) (Informative & directional)along pathway ,temple complex & near parking etc.	✓	✓
10	Seating Arrangement near Temple (20 Sitting)	✓	✓
11	Solar lighting near temple & along pathway (10 Lighting)	✓	✓
12	Temple entrance arch improvement by stone facing & write up	✓	✓
13	Landscaping work to facilitate better movement in and around temple premises	✓	✓
14	Space development for gathering of pilgrims and tourists near temple and paving in local stone.	✓	✓
15	New lodging facilities with behind temple compound.	✓	✓
16	Furniture for lodging facility	✓	✓
17	Toilet block at the rear side of the temple complex	✓	✓
18	Construction of langar hall 100 sqm (dismantling existing & relocating).	✓	✓
19	Area confinement with edge wall. Near lodging & langar hall.	✓	✓
20	Viewing deck (3 nos) around temple complex.	✓	✓
21	Restoration & renovation of Temple structure outside the existing temple (including construction of sculpture of holy cow etc.)	✓	✓
22	Electrification work in temple complex, parking, gate and langar hall.	✓	✓
23	Fire Fighting Works	X	Included in DPR
B. Tungeshwar Mahadev Temple			
1	Entrance area development i.e. pathway improvement from main road to temple gate wherever required by providing PCC, railing etc.(1.5 km length & 1.5 mt. wide)	✓	✓
2	Signage Work (informative signage) along the pathway & near the temple.	✓	✓
3	Development of parking facility at Chopta.	✓	X (Not included in DPR due to component being found non-feasible wrt. Space and land issues)
4	Development of Seating arrangements near temple & along pathway.	✓	✓
5	Development of viewing decks (3 nos for complete item.) near temple premises.	✓	✓

6	Development of toilet facilities along pathway & behind temple complex.	✓	✓
7	Improvement in the temple precinct	✓	✓
8	Restoration and Improvement of Lodging facilities behind temple.	✓	✓
9	Development of langar hall 100 sqm along pathway.	✓	✓
10	Improvement in the drinking water public stand posts	✓	X
11	Solar lighting(15 Nos.) along the pathway & temple premises	✓	✓
12	Entrance gate development outside temple.(2 nos)	✓	✓
13	Development of Chabutra (Platform) outside temple complex.	✓	X Not included in DPR as requirement of the same was not found justified during later assessment
14	Providing dustbins etc. for systemizing the solid waste management.	✓	✓

Environmental Assessment Document

Initial Environmental Examination (IEE)
Loan No: 3223 IND
Updated July 2015

Infrastructure Development Investment Programme for Tourism, Uttarakhand

Subproject–Development of Tourism Infrastructure In Kartikeya Swami Circuit (Lot-1) (Tungeshwar & Durgadhar Temple)

TRANCHE III

Prepared by the Government of Uttarakhand, for the Asian Development Bank

CURRENCY EQUIVALENTS

(as of 15th January 2015)

Currency unit – Indian rupee (Rs)

Rs1.00 = $ 0.0161559

$1.00 = Rs 61.9088

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

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

ABBREVIATIONS

ADB	-	Asian Development Bank
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
GoI	-	Government of India
GoU	-	Government of Uttarakhand
IA	-	Implementing Agency
IDIPT	-	Infrastructure Development Investment Program for Tourism
IEE	-	Initial Environmental Examination
IUCN	-	International Union for Conservation of Nature
MoEF	-	Ministry of Environment and Forests
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 Organization
UTDB	-	Uttarakhand Tourism Development Board
UUSDIP	-	Uttarakhand Urban Sector Development Investment Program
WLS	-	Wildlife Sanctuary

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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 project 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 2 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. DEVELOPMENT OF TOURISM INFRASTRUCTURE IN KARTIKEYA SWAMI CIRCUIT: Development of Tourism Infrastructure in Durgadhar and Tungeshwar is one of the subprojects proposed under the program. Dept of Tourism, Govt of Uttarakhand has decided to provide the facilities for the tourist as well as locals through upgrading the existing premises of the temples and its nearby areas, which has enormous potential for tourism as the region has rich cultural and historical background. During initial assessment, it was observed that lack of tourism infrastructure were found on the way to these temples, such as: midway facilities, toilet facilities, parking, signage, tourist reception centre and tourist interpretation centre. These temples have significant importance as tourists stay and visit the surroundings during the journey of Kedarnath and Badrinath.

3. The IEE is based on a careful review of subproject site plan and report; field visits; secondary data collection to characterize the environment and identify potential impacts; and consultations with stakeholders. An Environmental Management Plan (EMP) outlining the specific environmental measures to be adhered to during implementation of the subproject has been prepared. The subproject will conform to all Government regulations, policies and standards, as well as Asian Development Bank's Safeguard Policy Statement (2009)

4. Executing and implementing agencies. The executing agency is the Dept. of Tourism Govt. of Uttarakhand, while Uttarakhand Tourism Development Board (UTDB) is the implementing agency. A team of technical, administrative and financial officials, including safeguards specialists, is being provided at the PMU of UTDB to implement, manage and monitor project implementation activities. PMU is assisted by Project Management Consultants (PMC), Project Implementation Unit (PIU) and Design Supervision Consultant (DSC). 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.

5. Categorization: The environmental impacts of the subproject are not significant and subproject is categorized as Category B, 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

6. Subproject Scope: The subproject covers the following scope of works:

(a) Durgadhar Temple precinct: (i) Upgradation of infrastructure in the settlements around the approach area of the temple, including drinking water facilities and sanitation(ii)

Parking facility and vehicular approach along with adjoining retaining walls, Solid waste management(iii) Pathway development with railings & protection wall wherever necessary and signage and seating and lighting Temple entrance arch(iv) Improvement of the temple complex in terms of restructuring of the newly added temporary structures and overall landscaping to facilitate better movement and space for gathering of pilgrims and tourists (v) Lodging facilities with rooms and dormitories and upgradation of toilet block at the rear side of the temple complex and a langar hall, Area confinement with edge wall, viewing decks etc, Restoration of Temple premises. (vi) Construction of C.C road (main road to Temple,400 mtr length with drain. (Vii) Development of Solar lighting and Fire Fighting work. (viii)Capacity building for temple committee members for O & M activities.

(b) Tungeshwar temple precinct: (i) Entrance area development with appropriate signage (ii) Development of the 1.5km long pathway to the main temple, with railing increase in width and edge protection wherever required (iii) Seating arrangements, viewing decks and toilet facilities, Signage works along the pathway and Temple premises (iv) Improvement in the temple precinct, Lodging facilities and langar hall (v) Improvement in the drinking water facility for the approach areas. (vi) Construction of entrance gate (vii) Development of Solar lighting and Fire Fighting work. (vii) Capacity building for temple committee members for O & M activities.

7. Description of Environment:

Major sub project components are located at (i) Durgadhar Temple precinct (ii) Tungeshwar temple precinct and some works such as upgradation of pathway, sitting bench Drinking Water facility etc will be constructed nearby the temple. There is little natural habitat left at these sites, the area being frequented with locals and tourists. There is no encroachment or any squatter settlement in the proposed site. Tungeswar and Durgadhar land belongs to Temple trust/ Mandir Samiti and NOC are enclosed in appendix-3 & 4. There are no heritage sites listed by Archaeological Survey of India (ASI) within the subproject area or in near vicinity. 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.

8. Summary of Resettlement Impact: The project will not acquire land under the Indian (The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, (LARRA, 2013). All the works will be undertaken in vacant land owned by government (Temple Trust and Village Panchayat). All necessary no-objection certificates (NOCs) has been obtained from Panchayat and Temple Trust for Infrastructure development works in Durgadhar and Tungeshwar Precinct(see annex 3 to 7).Land records verified by Revenue Inspector are also attached in annexure 4 and 7 for Durgadhar and Tungeshwar Temple areas development works. Interpretation centre at Rudraprayag, which was proposed in the SAR is not considered under the DPR due to unavailability of Land.

9. Based on detailed design and Detailed Project Report ,which began in the month of Oct, 2014 and Completed in the first week of Dec, 2014,census and socio-economic survey1 of the DPs, which was identified during transect walk in the month August,14 . As per final design and DPR, civil works will not result in any permanent impact to common properties, residences and commercial structures. However, during development of the

[1] Socio-economic survey was undertaken on 13-14 Dec,2014. This serves as cut off dated for the RP.

1.5km long pathway with railing from main entrance to main temple (Tungeshwar), temporary livelihood impact may be on 8 commercial activities, as the work will be carried out in front of their shops, resulting to possibility of blockage of access for 7 days during construction. The existing width of this particular street is around 3 to 5 mtr. Temporary livelihood impacts will be caused due to blockage of access during works execution as due to blockage of access, customer ratio will be definitely decreased and income of Shopkeepers will be affected during execution of works. The shops are adjacent to the pathway. Efforts will be made during execution time to minimize the impact by scheduling civil works at night and phases. None of these small business structures are to be demolished. Provisions are made in the DPR that the work of railing incensement and edge protection will be made wherever available land is available. During conducting census and socio-economic survey, it was noticed that one no of DP has expired in the month of Sept, 14 and the shop has been closed. Consultation was made with his family members and they are not interested to continue the same occupation. Presently this structure is not being used for any activity and no one is operating from the premises now. However, this has been included in the final count in the RP for confirmation (Table 4)

10. 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) a grievance redressal mechanism. A number of impacts and their significance have already been reduced by amending the designs. The EMP will be included in civil work bidding and contract documents.

11. Locations and siting of the proposed infrastructures were considered to further reduce impacts. The concepts considered in design of the subproject are (i) design, material and scale will be compatible to the local architectural, physical, cultural and landscaping elements; (ii) preference will be given to the use of local material and labour as best as possible; (iii) for conservation, local construction material available in the nearby region as best as possible suiting to those in existence; (iv) all painting (interior and exterior) will be with environment-friendly low volatile organic compounds paints; (v) for retaining wall repair works, random rubble masonry will be used, with locally available stone to be laid in cement mortar by local skilled labour; (vi) earth backfill, if any will be done from the site excavated material; and (vii) ensuring all planning and design interventions and decisions are made in consultation with local communities and reflecting inputs from public consultation and disclosure for site selection.

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

13. Mitigation measures have been developed to reduce all negative impacts to acceptable levels. Mitigation will be assured by a program of environmental monitoring to be conducted

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

14. The stakeholders were involved in developing the IEE through discussions on-site and public consultation, after which views expressed were incorporated into the IEE and in the planning and development of the subproject. The IEE will be made available at public locations in the town and will be disclosed to a wider audience via the ADB and Uttarakhand Tourism Development Board 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.

15. Consultation, Disclosure and Grievance Redress Public consultations were done in the preparation of the project DPR and IEE. On-going consultations will occur throughout the project implementation period. A grievance redress mechanism is described within the IEE to ensure any public grievances are addressed quickly.

16. 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.

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

I. INTRODUCTION

A. Background

18. The India Inclusive Tourism Infrastructure Development Project (IITIDP) envisages an environmentally and culturally sustainable and socially inclusive tourism development, in the project states of Himachal Pradesh, Punjab, Tamil Nadu and Uttarakhand. The expected Impact of the Project in the four states is sustainable and inclusive tourism development in priority State tourism sub circuits divided into marketable cluster destinations that exhibit enhanced protection and management of key natural and cultural heritage tourism sites, improved market connectivity, enhanced destination and site environment and tourist support infrastructure, and enhanced capacities for sustainable destination and site development with extensive participation by the private sector and local communities.

19. Location of the project areas: The sub project area falls under Rudraprayag District. The Durga Dhar temple is, located along the Rudraprayag- Pokhri Road, 22 kms from Rudraprayag District. Tungeshwar temple is 7 km from Durga Dhar and situated in the village, Phalasi, It is located 48 KM towards South from District headquarters Chamoli Gopeshwar and 167 KM from State capital Dehradun. Rudraprayag is located at WikiMiniAtlas30°17′N 78°59′E/30.28°N 78.98°E / 30.28; 78.98. It has an average elevation of 895 meters (2,936 feet). Rudraprayag is a town and a municipality in Rudraprayag district in Uttarakhand. Rudraprayag is one of the Panch Prayag (five confluences) of Alaknanda River, the point of confluence of rivers Alaknanda and Mandakini. Kedarnath. It is one of the most beautiful regions in the world, rich in deodar, pine, oak, spruce and Himalayan fir trees.

20. Rudraprayag lies on national highway NH 58 that connects Delhi with Badrinath in Uttarakhand. Therefore all the buses and vehicles that carry pilgrims from New Delhi to Badrinath via Haridwar and Rishikesh in pilgrim season of summer months pass through Rudraprayag on the way to Joshimath and further north. Rishikesh is the major starting point for road journey to Rudraprayag and regular buses operate from Rishikesh bus station to Rudraprayag. The road distance from Rishikesh to Rudraprayag is 141 km (88 mi) via Devprayag and Srinagar.

21. Rudraprayag District was established on 16th September1997. The district was carved out the following areas of three adjoining districts. 1. Whole of Augustmuni & Ukhimath block and part of Pokhri & Karnprayag block from Chamoli District. 2. Part of Jakholi and Kirti nagar block from Tehri District. 3. Part of Khirsu block from Pauri District.

22. Present Status of Temple and its surroundings: During the need assessment survey, it was found that there is lack of tourism infrastructure such as; midway facilities, toilet facilities, parking, signage, tourist reception centre and tourist interpretation centre. The approach road towards the temple complex is in a dilapidated condition. There is lack of visitor information system. The temple complex has a dilapidated approach road, lack of parking space, inappropriate waste disposal system and inadequate and rundown other visitor/ tourist facilities and services. The existing visitor facilities like toilets and drinking fountains are underutilized due to improper functioning. There is lack of designed parking lots. There is lack of directional and informational signage.

23. The sub – project envisages improvement of basic tourist infrastructure facilities at Durgadhar Temple and Tungeshwar Mahadev Temple and providing other facilities in

consultation with Village Panchayat, Temple Trust/Committees and Forest department. The sites are important to be developed for the following reasons;

- Currently facing lack of world-class infrastructure.
- Need to create more economically vibrant and environmentally sustainable area.
- At present un- managed and non- clean site.
- To bring the destination on world map as World's most popular destinations
- To Strengthen our cultural significance
- Enhance quality of life and environment.
- Promote tourism in the areas
- Create awareness among the locals, Indians and foreigners

24. The expected impact of the Project is sustainable and inclusive tourism development in and around Durgadhar and Tungeswar Temple that exhibit enhanced protection and management of temple, improved market connectivity, enhanced destination and site environment and tourist support infrastructure, and enhanced capacities for sustainable destination and site development with extensive participation by the private sector and local communities.

25. 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 Development of Tourism Infrastructure in Kartikeya Swami Circuit Lot 1 (Tungeswar and Durgadhar Temple) is categorized as B and an Initial Environmental Examination (IEE) prepared. This IEE assesses the environmental impacts due to the proposed development works and specifies measures towards addressing the impacts. The IEE was based on a review of sub-project site plans and reports; field visits, and secondary data to characterize the environment and identify potential impacts; and interviews and discussions with stakeholders. Based on the findings of the IEE, an Environmental Monitoring Plan has been prepared, outlining the specific environmental measures to be adhered to during implementation of the sub-project.

B. Purpose of the IEE:

26. 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 discussions with stakeholders. This IEE provides mitigation measures for impacts related to location and design, construction, operation, and maintenance. An EMP outlining the specific environmental measures to be adhered to during implementation of the subproject has been prepared and forms part of this IEE.

C. Environmental Regulatory Compliance:

27. The realm of environmental regulations and mandatory requirements for the proposed sub-project is shown in **Table 1.** The Environmental Impact Assessment (EIA) notification, 2006 by the Ministry of Environment and Forests (MoEF, GoI) specifies the mandatory environmental clearance requirements. Accordingly, all projects and activities are broadly categorized into two categories - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and natural and man-made resources. Given that the sub-project is not covered in the ambit of the EIA notification, Environment clearance requirements from the GoI are not triggered.

Table 1: Environmental Regulatory Compliance

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
"Development Of Tourism Infrastructure In Kartikeya Swami Circuit **Lot 1** (Tungeswar and Durgadhar Temple)	The EIA notification, 2006 (and its subsequent amendments in 2009) provides for categorization of projects into category A and B, based on extent of impacts.	The sub-project is not covered in the ambit of the EIA notification as this is not covered either under Category A or Category B of the notification. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from the state or the GoI is not triggered. **Not Applicable**
	The Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the rules, 1959 provide guidance for out carrying activities, including conservation, construction and reuse in and around the protected monuments.	The site of Tungeswar and Durgadhar Temple is not close to any ASI protected monument. Hence no permission is needed from ASI. **Not Applicable**
	Water (Prevention and control of pollution) Act, 1974 and Air (prevention and control of pollution) Act, 1981	Consent for Establishment (CFE) and Consent for Operation (CFO) from the Uttaranchal SPCB for all sub-projects requiring, setting up of hot mix plants, wet mix plants, stone crushers and diesel generators.
	The Wildlife Conservation Act, 1972, amended in 2003 and 2006, provides for protection and management of Protected Areas.	No wildlife protected area nearby. **Not Applicable**
	Forest (Conservation) Act, 1980	This act provides guidelines for conservation of forests and diversion of forest land for non-forest use. The law also states guidelines on de-reservation of various of the Act. Restriction on the de-reservation of forests or use of forest land categories of forests for diversion of forest

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
		land. This law describes the penalty for contravention of the provisions for non-forest purpose. If forest land is to be acquired for the project, the Forestry Clearance needs to be taken. **Not Applicable**
	ADB's Safeguard Policy Statement, 2009	Categorization of sub-project components into A, B, C FI and developing required level of environmental assessment for each component. **Project is categorized as B**

28. The above Table indicates that the proposed sub-project does not need to go through a full-scale environmental assessment process; as the scale of impacts and categorization of the sub-project components will not require clearances from Competent Authorities. Therefore, any further approvals or environmental clearances from the GoI or GoUK are not envisaged.

29. The ADB guidelines, stipulate addressing environmental concerns, if any, of a proposed activity in the initial stages of Project preparation. For this, the ADB Guidelines categorizes the proposed components into categories (A, B or C) to determine the level of environmental assessment [2] 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 Appendix 1with 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 baseline data generation on environmental parameters and secondary sources of information and field reconnaissance surveys. Stakeholder consultation was an integral part of the IEE. An Environmental management plan (EMP) outlining the specific environmental measures to be adhered to during implementation of the sub-project has been prepared.

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

2 As per SPS 2009 projects are assigned to one of the following four categories: (i) **Category A.** A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required. (ii) **Category B.** A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required. (iii) **Category C.** A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed (iv) Category FI. A proposed project is classified as category FI if it involves investment of ADB funds to or through a FI (paras. 65-67).

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

D. Report Structure:

31. This Report contains eight (8) sections including this introductory section: (i) Introduction; (ii) Description of the sub project; (iii) Description of the Existing Environment; (iv) Environmental Impacts and Mitigation Measures; (v) Institutional Requirements for Reporting and Review; (vi) Public consultation & Information Disclosure; (vii) Findings and Recommendations; and (viii) Conclusions.

II DESCRIPTION OF THE ENVIRONMENT

A. Assessment of Exiting Situation :

Project Location

32. The sub project area falls under Rudraprayag District and it includes two destination points such as Durghadhar Temple and Tungeshwar Mahadev temple. The sub project envisages improvement of basic tourist infrastructure facilities at Temple and providing other facilities in consultation with Village Panchayat, Temple Trust/Committees and Forest Department.

Durga Dhar Temple

33. The temple is a great place of Shiva and Shakti. Lot of people believes in the place. There is a myth about the temple that in past a cow from Chamak village did not used to give milk to her owner but go to a place of Devi, where her milk used to automatically flow over a shrine. After many days the owner followed her to notice about what's happening, after seeing that the milk had flown to the shrine but not given to the owner, he got angry and beaten the cow with a stick. Soon after this a *Shivlinga* appeared at the place and there was an evidence of breakage in the *linga*. The cow then rubbed herself and a water jet emerged there that destroyed the whole Chamak village. The villagers then understood their fault and confessed before the *Devi*, and then the village again developed and settled. The main temple is approx. 500 m. above from the ground level and is located on the way to Tungeshwar temple.

Tungeshwar Temple at Phalasi Village

34. Tungeshwar is a Village in Tharali Tehsil in Chamoli District of Uttarakhand State, India. It is located 48 KM towards South from District headquarters Chamoli Gopeshwar. 167 KM from State capital Dehradun. Tungeshwar is surrounded by Dewal Tehsil towards East, Narayan bagar Tehsil towards west, Gairsain Tehsil towards west, Ghat Tehsil towards North. Almora, Pauri, Nainital, Ramnagar are the nearby Cities to Tungeshwar. This Place is in the border of the Chamoli District and Pauri Garhwal District. The main temple is approx. 1500 m from main road.

Project Category

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

B. Proposed Subproject component :

36. The index map of the entire subproject sites is shown in Figure-1. Preserving the temple structure and upgrading the facilities to world class standards will ensure increase in the number of tourists. Thus investing in the tourism industry of the region will help in generating more revenue on the other side. Appropriate re-designing and planning has been done to retain the heritage of the temple complexes, along with new accommodation for the increasing numbers of visitors.

Proposed sub Project Component:

❖ **Durgadhar Temple**

- Upgradation of infrastructure in the settlements around the approach area of the temple.
- Parking facility and vehicular approach along with adjoining retaining walls, Solid waste management
- Pathway development with railings & protection wall wherever necessary and signage and seating and lighting Temple entrance arch
- Improvement of the temple complex in terms of restructuring of the newly added temporary structures and overall landscaping to facilitate better movement and space for gathering of pilgrims and tourists
- Lodging facilities with rooms and dormitories and toilet block at the rear side of the temple complex and a langar hall, Area confinement with edge wall, viewing decks etc, Restoration of Temple premises.
- Construction of C.C road(main road to Temple,400 mtr length with drain.
- Development of Solar lighting and Installation of Fire Fighting Equipments.
- Capacity building for temple committee members for O&M activities.

❖ **Tungeswar Temple:**

- Entrance area development with appropriate signage
- Development of the 1.5km long pathway to the main temple, with railing increase in width and edge protection wherever required
- Seating arrangements , viewing decks and toilet facilities, Signage works along the pathway and Temple premises
- Improvement in the temple precinct, Lodging facilities and langar hall
- Improvement in the drinking water facility for the approach areas.
- Construction of entrance gate.
- Development of Solar lighting and Installation of Fire Fighting Equipments.
- Capacity building for temple committee members for O&M activities.

Figure 1: Rudrapraya District map showing the subproject sites

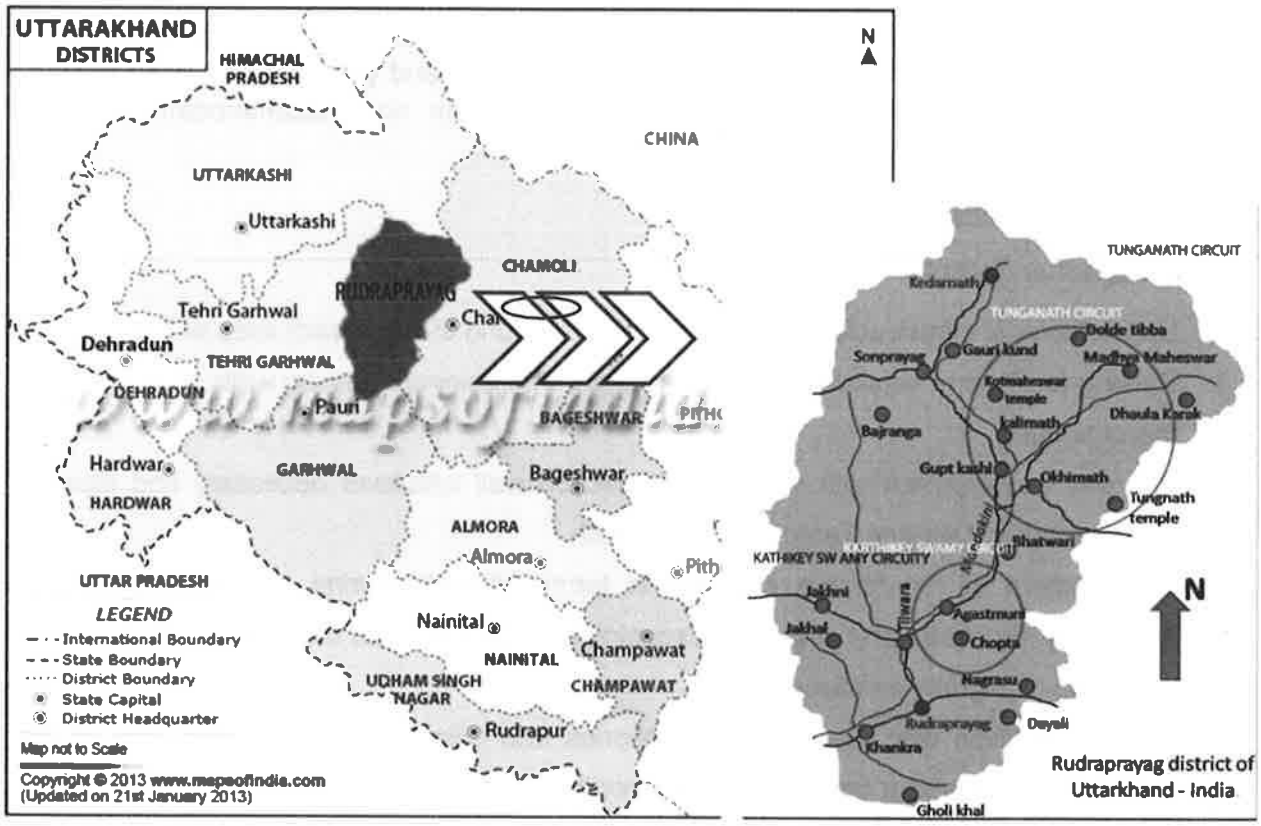


Figure 2: Google Route Map

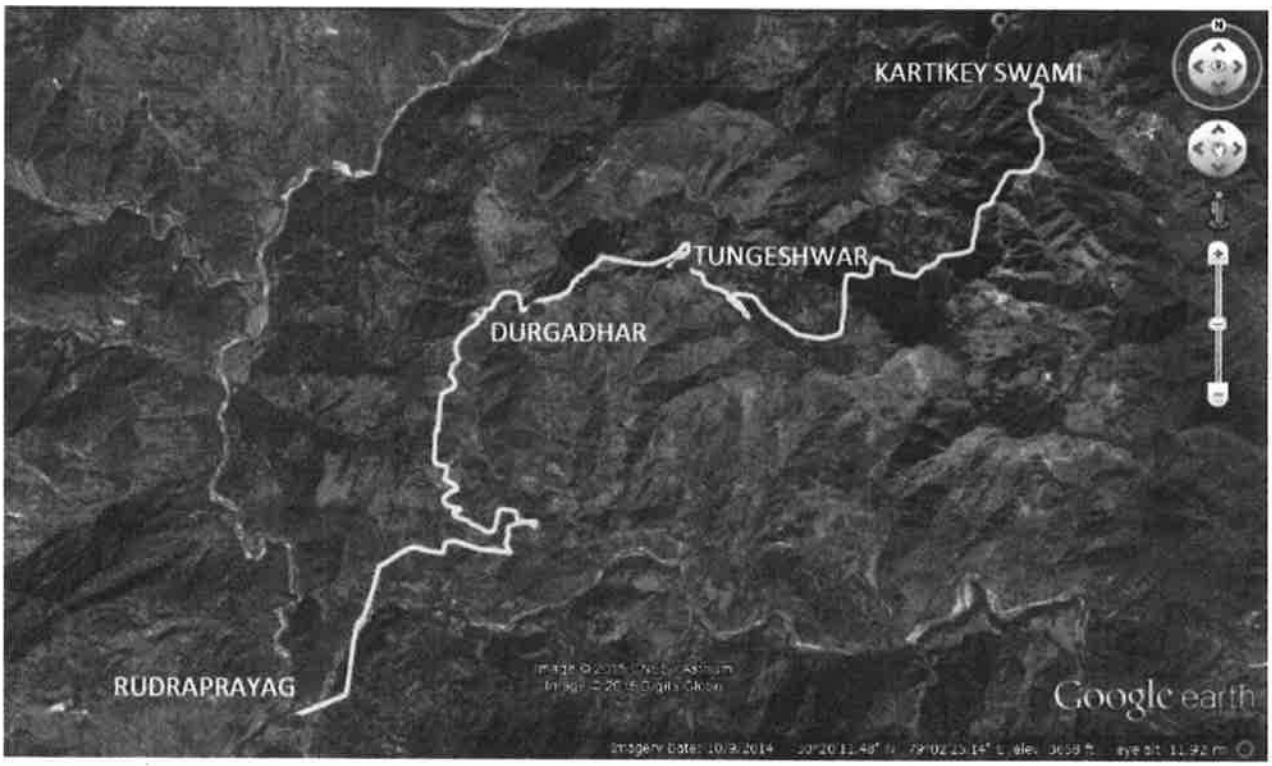


Figure 2: Google map for Tungeshwar temple

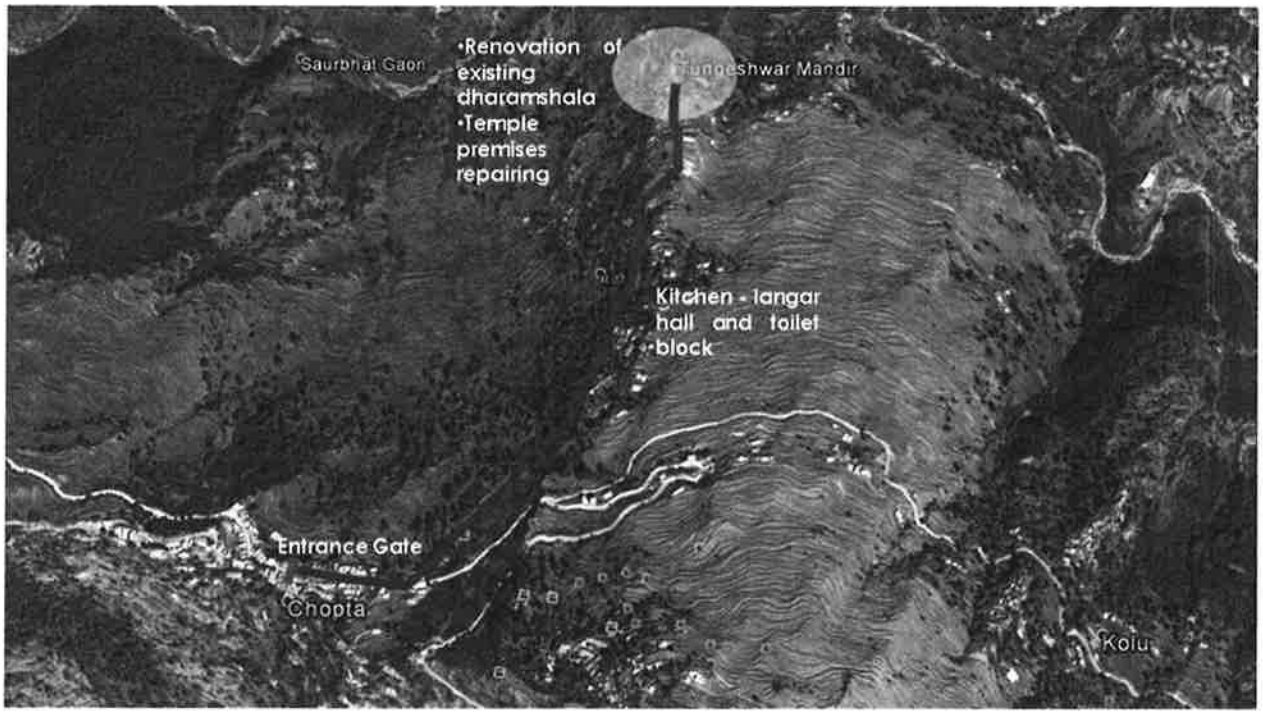
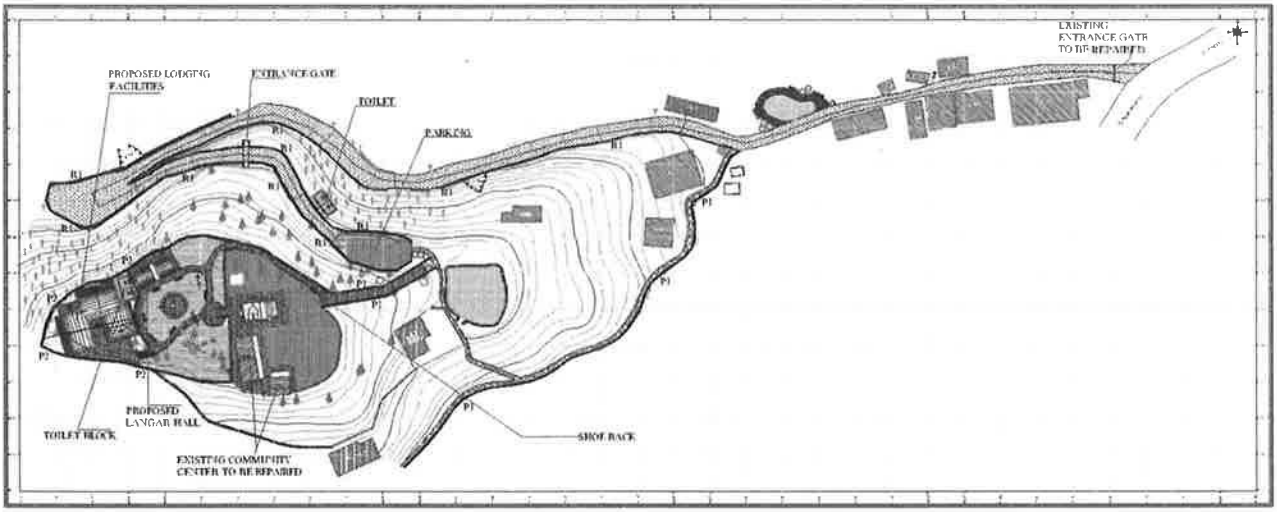
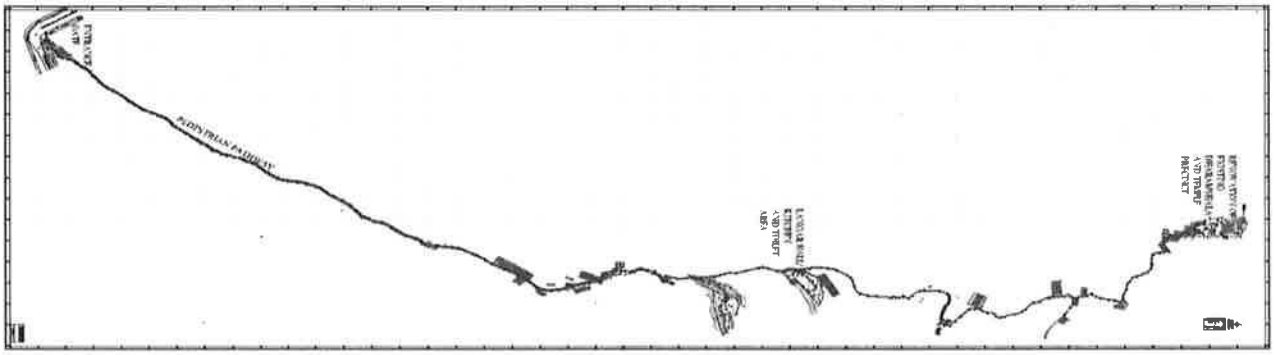


Figure 2: Google map for Durgadhar temple

Fig-3 Layout design Kartikeya Swami circuit





C. Implementation Schedule :

37. Implementation period for this package is 24 months. The project is expected to start in the third quarter of 2015.

III. DESCRIPTION OF THE EXISTING ENVIRONMENT

38. This section presents a brief description of the existing environment, 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 Meteorological Department.

A. Environmental Profile:

Air and Noise Quality

39. The air pollution level is well within the permissible limits because there are no major sources of pollution in the region. Any point or non-point pollution sources of air pollution were not observed during the survey period. It was observed that the traffic on the roads is too low to cause unbearable air pollution due to vehicular exhaust. Also as there are no industries recorded in or around the project site and hence any other source of atmospheric air pollution is not expected.

40. It was observed that ambient noise scenario in the study area is quite low in general. There are no industrial enterprises in and around the project area. As the traffic density is very low, and the sub project sites are far away from main roads to have a noticeable noise impact from traffic, hence the noise either from point or nonpoint sources is not expected in the project area. Moreover, there will be not much rise in the noise impacts due to the proposed activities as there are no major settlements near the proposed site

Climate:

41. As the elevation of the district ranges from 800 m. to 8000 m above sea level. The climate of the district depends on altitude. The winter season is from mid November to March. As most of the region is situated on the southern slops of the outer Himalayas, monsoon currents can enter through the valley, the rainfall being heaviest in the monsoon from June to September.

Rainfall

42. Most of the rainfall occurs during the period June to September when 70 to 80 percent of the annual precipitation is accounted for in the southern half of the district and 55 to 65 percent in the northern half. The effectiveness of the rains is, among others, related to low temperature which means less evapotranspiration and forest or vegetation cover. However, the effectiveness is neither uniform nor even positive in areas where either the vegetation cover is poor or / and has steep slopes or the soils have been so denuded that their moisture absorption capacity has become marginal.

Temperature:

43. The details of temperature recorded at the meteorological observatories in the district show that the highest temperature was 340C and lowest 00C. January is the coldest month after which the temperature begins to rise till June or July. Temperature varies with

elevation. During the winter cold waves in the wake of western disturbances may cause temperature to fall appreciably. Snow accumulation in valleys is considerable.

Humidity

44. The relative humidity is high during monsoon season, generally exceeding 70% on the average. The driest part of the year is the pre monsoon period when the humidity may drop to 35% during the afternoon. During the winter months humidity increases toward the afternoon at certain high stations.

Cloudiness

45. Skies are heavily clouded during the monsoon months and for short spells when the region is affected by the passage of western disturbances. During the rest of the year the skies are generally clear to lightly cloud covered.

Winds

46. Owing to the nature of terrain local affect are pronounced and when the general prevailing Winds not too strong to mask these effect, there is a tendency for diurnal reversal of winds, the flow being anabatic during the day and katabatic at night, the latter being of considerable force.

B. Ecological Resources

Forests:

47. The State is home to nearly 4048 species of Angiosperms and Gymnosperms belonging to 1198 genera under 192 families. Of these nearly 116 species are endemic to Uttarakhand. 161 species of flora found in Uttarakhand are recognized as rare or threatened under the categorization of the International Union for Conservation of Nature (IUCN). Out of the 223 species of Orchids reported from the North Western Himalayas, over 150 have been reported from the State.

48. The State also supports a wide variety of faunal forms which includes about 102 species of mammals, 623 species of birds, 124 species of fish, 69 species of reptiles and 19 species of amphibians. Highly endangered species like Tiger, Asian Elephant, King Cobra, etc. find suitable habitat in the forests of state.

49. From about 1220 mts to 1829 mts, Chir abounds and above this level oak and chimul are found, the former being a hard wood, is used for making agricultural implements and the latter for fuel. The Chir wood is commonly used for building purposes in the district. Chir is also tapped for resin but quantity of turpentine produced in the district is small.

50. The distance of Forest from the Temple sites of Durgadhari and Tungeshwar is approx. 1-1.5 km from both temple sites. Main trees in the area are Chir pine, tun, banj, burans etc. However, the works are proposed in Govt. land only (Gram Panchayat/ Van Panchayat). No tree felling is envisaged during project construction activities.

Protected Areas

51. The State of Uttarakhand is represented by Biogeographic Zones 2B Western Himalaya and 7B Siwaliks. About 18.7 % of the total area under the Forest Department has been earmarked for biodiversity conservation by the creation and management of 12 Protected Areas (PA) and a biosphere reserve in the State. The Nanda Devi Biosphere Reserve

(NDBR) is the lone biosphere reserve in the State. The Nanda Devi National Park (NDNP) and the Valley of Flowers NP are UNESCO World Heritage Sites declared in 1988. The list of PA's (National Parks and Wildlife Sanctuaries) in the State is given in **Table -2. There are no protected areas (PAs) in 10 Km radius of the proposed sub project site.**

Table: 2 National Parks and Wildlife Sanctuaries in Uttarakhand

Sl. No	National Park	Year of Establishment	Area (sq.km)	District
1	Corbett NP	1936	521	Pauri Garhwal
2	Nanda Devi NP	1982	630	Chamoli
3	Valley of Flower NP	1982	87	Chamoli
4	Rajaji NP	1983	820	Dehradun and Haridwar
5	Gangotri NP	1989	2390	Uttarkashi
6	Govind NP	1990	472	Uttarkashi
7	Govind WLS	1955	521	Uttarkashi
8	Kedarnath WLS	1972	957	Chamoli
9	Askot WLS	1986	600	Pithoragarh
10	Sonanadi WLS	1987	301	Pauri Garhwal
11	Binsar WLS	1988	46	Almora
12	Musoorie WLS	1993	11	Dehradun

Source: Wildlife and Protected **Areas, ENVIS, 2002**

52. The tourist arrival data for Rudraprayag district is given in **Tables -**.3. It is noted that tourist arrival has increased gradually.

Table 3: Tourist Arrival Data for Rudraprayag District for the Years 2007 to 2012

S. No.	Year	Indian	Foreign	Total
1	2007 (January 01, 2007 to December 31, 2007)	851237	14389	865626
2	2008 (January 01, 2008 to December 31, 2008)	867869	14793	882662
3	2009 (January 01, 2009 to December 31, 2009)	871827	15329	887156
4	2010 (January 01, 2010 to December 31, 2010)	898505	16103	914608
5	2011 (January 01, 2011 to December 31, 2011)	912909	20533	933442
6	2012 (January 01, 2012to December 31, 2012)	964380	15899	980279

Source: District Tourism Development Office, Rudraprayag

C. Economic Resources:

Industries

53. Rudraprayag has very few industries as industrial development here is still in its infancy stage. There is no large scale Industries or Public Sector undertakings in entire Rudraprayag district. Micro and small enterprises and artisan units exit in the District.

Infrastructural Facilities

Transportation

54. Rudraprayag is connected with Uttrakhand and rest of India through road network. National Highway 58 runs parallel to the North Western part of the Rudraprayag and connects it to rest of the world. Rudraprayag is also well connected by air transportation and railway line with entire country. Nearest Airport and railway station is Jolly Grant and Rishikesh railway Station respectively. Rudraprayag lies on national highway NH 58 that connects Delhi with Badrinath and Mana Pass in Uttarakhand near Indo-Tibet border. Therefore all the buses and vehicles that carry pilgrims from New Delhi to Badrinath via Haridwar and Rishikesh in pilgrim season of summer months pass through Rudraprayag on the way to Joshimath and further north. Rishikesh is the major starting point for road journey to Rudraprayag and regular buses operate from Rishikesh bus station to Rudraprayag. The road distance from Rishikesh to Rudraprayag is 141 km (88 mi) via Devprayag and Srinagar.

Landuse

55. That majority of the district is under forest cover followed by land under cultivation and land under non-agricultural use. Together these three land use categories account for 94% of the total area. The cultivable barren land, total fallow land (current fallow and other fallow), pasture and other grazing land and land under gardens, bushes, groves etc. account for only 5%, which indicate that apart from the forest cover, remaining areas are primarily utilised for agricultural use.

Agricultural Development:

56. Agriculture is the main occupation of the people. However, intensive cultivation is not possible as major part of the district is mountainous. Agricultural activities are common on gentle hill slopes and in relatively plain, broad river valleys of Bhagirathi, Bhilangana and Alaknanda basins. Rice, wheat, mandua, barley, maize and sawan are the principal crops grown in the district. Wheat is the major crop grown in 26962 ha (47.97% of the net sown area) followed by sawan (17488 ha), mandua (14630 ha) and rice (12642 ha). Apart from this, other important crops sown in the district are barley (2620 ha), maize (1641 ha) and urad dal (1524 ha).

D. Social and Cultural Environment:

Population and Communities

57. According to the 2011 census Rudraprayag district has a population of 236,857, giving it a ranking of 585th in India (out of a total of 640). The district has a population density of 119 inhabitants per square kilometer (310 /sq m). Kartikeya Swami temple is the only temple dedicated to lord Murugan or Kartikeya in Uttarakhand.

Archaeological Resources

58. There are no heritage sites listed by Archaeological Survey of India (ASI) within the subproject area or in near vicinity. 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.

IV ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A. Environmental Impacts :

59. Urban development projects like tourism infrastructure development projects may cause impacts upon environment in many ways. The impacts anticipated from the proposed project may be on Physical, Biological, Socio-economic and Cultural Environment. The IEE helps to identify those negative impacts that are anticipated in the project under consideration and to suggest the mitigation measures to minimize the negative impacts. The assessment for the subproject namely "Development of Tourism Infrastructure in Kartikeya Swami Circuit (Lot-1) (Tungeshwar & Durgadhar Temple)" has been carried out for potential impacts during the following stages of the project planning and implementation:

(i) **Location impacts:** Impacts associated with site selection, including impacts on environment and resettlement or livelihood related impacts on communities;

(ii) **Design impacts 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 subproject.

60. 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.

Location Impacts

61. The sites of subproject components are government-owned land thus will not require land acquisition. Tungeswar and Durgadhari land belongs to Temple Trust and Mandir Committee. These all are currently in use and all improvements are planned within the available land. There are no significant ecological resources in the subproject region (protected areas or rare or important species or habitats). There are no heritage sites notified by Archaeological Survey of India (ASI) within the subproject area or in the immediate surroundings. No significant impacts can arise due to project location as the sites involving the project components do not pass through/ near any areas having importance from ecological considerations.

62. The only location impact is that sub project is located in earthquake zone IV and even a small magnitude earthquake may damage infrastructure.

Impacts during Design and Pre-Construction Phase

63. Impacts arising from the inappropriate designs of proposed facilities would in general include the inadequate facilities and infrastructure at temple and unsafe access road, etc. This will result into inconvenience to the visitors. The project intervention has been planned

to address inadequate amenities. But, there may be impacts on surrounding habitations, if proper sanitation, waste water collection and treatment is not suitably planned or operated.

64. Anticipated Environmental impacts associated with the Pre-construction phase are: loss of land, properties and livelihood due to acquisition of properties; tree cutting, impacts on forest land; etc. As the proposed subproject area is owned by the government (Temple Trust and Village Panchayat), there is no land acquisition, impact on properties or involuntary resettlement issues. No tree cutting is anticipated except clearing of the shrubs. During pre-construction stage there will be impact on account of establishment of construction camp if this is established outside sub project land.

65. Based on the environmental screening of the subproject area, there are no significant adverse environmental impacts during the design and Pre-construction phase.

Design considerations to avoid environmental impacts.

66. The following are design considerations to avoid environmental impacts:

a. Incorporation of adequate drainage provisions
b. Adoption of design compatible with the natural environment and suitable selection of materials to enhance the aesthetic appeal and blend with the natural surroundings.
c. Straight lines and simple geometry in the proposed landscape and architectural Features.
d. Use of subtle colours and simple ornamentation in the structures.
e. Natural tree species in the proposed landscape.
f. Use of local stone in the proposed walkways and built structures thus maintaining a Rustic architectural character

Impacts during Construction Phase

67. All construction activities to be undertaken at the site will be approved by PIU. The construction stage impacts due to the proposed project components are generic to the construction activities. The EMP emphasizes on the construction impacts and necessary mitigation measures to be strictly followed by the contractor and supervised by the DSC and PIU. The Key impacts are covered in the following paragraphs.

68. Impacts due to stock piles of construction materials, Demolition waste and Hill Cut: Improper stockpiling of construction materials can obstruct movement along access road and drainage. Due consideration will be given for material storage on construction sites, stockpiles will be covered to protect from dust and erosion. Waste materials will be disposed at identified and approved location.

69. Disposal of construction waste: The construction waste could lead to untidy conditions at site and may find its way to local streams and siltation and obstruction to natural flow in the streams. In the proposed subproject, it shall be made mandatory for the contractor involved in construction activities for proper disposal of the construction waste at the disposal site as designated by the PIU and DSC. **Quarry/Borrow pits operations:** All the construction materials will be procured from market as construction works are relatively of very small level. The construction activities do not require earthworks so operations of borrow areas is not anticipated. The sub project construction activities will also not require

direct procurement of stone dust or sand from the quarries. Hence there are no impacts on quarry and no requirement of borrow area operations.

70. Increase in noise levels: Noise levels in the immediate proximity of worksites are expected to increase during construction. However, these will be largely imperceptible as civil works will be confined in relatively small sites and the duration of this exposure will also be relatively brief. Adjoining village. (in Tungeshwar, not in Durgadhar, 300-400 mt habitation) At Tungeshwar village construction works will increase noise levels slightly and these will be felt by the villagers but these will be intermittent in nature. In Durgadhar, habitation is around 300 mt from project site. Hence impacts of construction activities shall not be felt on the habitations. The workers exposed will be suitably equipped with ear muffs. Construction activities shall be restricted during night time.

71. Impacts on biodiversity during construction phase: No major impacts are expected on the biodiversity during the construction phase as the sub project site is open and there are no trees that need to be cut. There will be removal of some shrubs during creation of facilities along the access path to the Temple.

72. Disturbance to traffic during construction phase: At the time of construction there will be no disturbance and inconvenience for the movement of the public and vehicles due to the pathway being separate from the main road. The distance of project site from the main road is approx. 500 mt. in Durgadhar and 1.5 km in Tungeshwar. Inconveniences, if any will be for a very short duration and will be minimized by proper scheduling.

73. Impacts on cultural properties: The proposed project will have no impacts on the Temples or any other structure of historical and/or cultural significance.

74. Ground water will not be used for construction purposes and the problem of ground water contamination is not anticipated during the construction phase as there will be proper disposal of the waste water.

75. Generation of dust is anticipated during transportation, excavation and construction activities. Certain volumes of dust and gaseous emissions will also be generated during the construction period from construction machineries like mixers, vehicles engaged in transportation of construction materials. Pollutants of primary concern at this stage include Respirable and Suspended Particulate Matter (SPM) and gaseous emissions (NO_X, SO_2, CO, etc). However, transportation of construction materials will be confined to adequate trips per day depending upon extent of construction activity. Therefore, impact at this stage will be temporary and restricted to the close vicinity of the construction site only.

76. All vehicles and construction equipment operating for the contractor and the consultant will obtain and maintain "Pollution under Control" (PUC) Certificates. To control dust emissions, vehicles deployed for borrow material, sand and aggregate haulage, shall be covered with tarpaulins to be spillage proof. Regular sprinkling of water during excavations, loading, unloading, vehicular movement and raw material transport, provisions shall be made in the construction period.

77. Periodic air quality monitoring to ensure emissions to comply with standards will be conducted. The Contractor will submit emission monitoring results as a compliance with environmental monitoring plan.

78. 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 confined to the requirement per day, depending upon extent of construction activity. Further the noise associated with the equipment shall be reduced with proper maintenance of construction equipment. The increase in noise levels is expected to be between 5 - 10 % of ambient noise levels. This increase will be felt up to a distance of 500 m only. This noise will be intermittent in nature and will last only till construction phase. Necessary monitoring of noise levels will be taken up as part of environmental monitoring plan.

79. The construction activities are proposed in the existing sites of temples and access paths. Therefore, no adverse impact on fauna and flora is anticipated due to the proposed activity.

80. Debris/solid waste will be generated due to excavated earth material and waste generated from construction camps, and demolition of any small structures at the locations of facilities construction. Debris/excavated earth material can be reused subject to the approval of the Engineer during the construction. Waste generated from the construction camp and demolition will be disposed off as per law to the satisfaction of the Engineer.

81. The clean-up and restoration operations are to be implemented by the contractor prior to demobilization. The contractor will clear all temporary structures and dispose off all garbage from construction camp site. All construction zones used/affected by the sub-project will be left clean and tidy, at the contractor's expense as per the satisfaction the Engineer

82. The Contractor is likely to engage local labor for various construction activities. However, in case of engaging migratory labor for the purpose, the contractor has to establish properly designed labour camp with all basic amenities such as potable drinking water supply and sanitation facilities (septic tanks and soak pit) and also dust bins to be placed in adequate numbers, which will be regularly emptied and waste will be disposed off as per law. EMP envisages mitigation measures for likely adverse impacts associated with the labour camps

B. Land Acquisition And Resettlement Impacts:

Summary of Resettlement Impact: The project will not acquire land under the Indian (The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, (LARRA, 2013). All the works will be undertaken in vacant land owned by government (Temple Trust and Village Panchayat). All necessary no-objection certificates (NOCs) has been obtained from Panchayat and Temple Trust for Infrastructure development works in Durgadhar and Tungeshwar Precinct(see annex 3 to 7).Land records verified by Revenue Inspector are also attached in annexure 4 and 7 for Durgadhar and Tungeshwar Temple areas development works. **Interpretation centre at Rudra prayag,which was proposed in the SAR is not considered under the DPR due to unavailability of Land**.

83. Based on detailed design and Detailed Project Report ,which began in the month of Oct, 2014 and Completed in the first week of Dec, 2014,census and socio-economic survey[3] of the DPs, which were identified during transect walk in the month August,14 . As per final design and DPR, civil works will not result in any permanent impact to common properties, residences and commercial structures. However, during development of the 1.5km long

[3] Socio-economic survey undertaken on 13-14 Dec,2014. This serves as cut off dated for the RP.

pathway with railing from main entrance to main temple (Tungeshwar), temporary livelihood impact may be on 8 commercial activities , as the work will be carried out in front of their shops, resulting to possibility of blockage of access for 7 days during construction(see figure 2). The existing width of this particular street is around 3 to 5 mtr. As far as temporary livelihood impacts are concerned, will be caused due to blockage of access during works execution. It was predicted that due to blockage of access, customer ratio will be definitely decreased and income of Shopkeepers will be affected during execution of works. The shops are adjacent to the pathway. Efforts will be made during execution time to minimize the impact by scheduling civil works at night and phases. None of these small business structures will be demolished. Provisions are made in the DPR that the work of railing incensement and edge protection will be made wherever available land is available. During conducting census and socio-economic survey, it was noticed that one nos of DP (S.No-2 of draft RP) has expired in the month of Sept, 14 and their shop has been closed. Consultation was made with his family members and they are not interested to continue the same occupation (see annexure12.). Presently this structure is not being used for any activity and no one is operating from the premises now. Even though this has been included in the final count in the RP for confirmation

Table: 4 Subproject Components and its Impact on Land Acquisition and Resettlement

S.No	Name Of Components	Permanent Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
A.	**Durgadhar Temple precinct**			
1.	Upgradation of infrastructure around the approach area of the temple, including drinking water facilities and sanitation	NO	NO	All the works will be constructed within the temple complex / on Temple Trust & Panchayat land No IR impact envisaged.
2.	Parking facility and vehicular approach along with adjoining retaining walls	NO	NO	
3.	Solid waste management	NO	NO	
4	Pathway development with railings & protection wall wherever necessary and signage and seating and lighting	NO	NO	
5.	Temple entrance arch	NO	NO	
6.	Improvement of the temple complex in terms of restructuring of the newly added temporary structures and overall landscaping to facilitate better movement and space for gathering of pilgrims and tourists	NO	NO	
7.	Lodging facilities with rooms and dormitories and toilet block at the rear side of the temple complex and	NO	NO	

	a langar hall			
8.	Area confinement with edge wall , viewing decks etc	NO	NO	
9.	Restoration of Temple premises	NO	NO	
10	Construction of C.C road(main road to Temple,400 mtr length with drain	NO	NO	
11.	Development of Solar lighting and Fire Fighting work.	NO	NO	
12.	Capacity building for temple committee members for O&M activities.	NO	NO	
B.	**Tungeshwar temple precinct**			
13	Entrance area development with appropriate signage	NO	NO	Will be constructed on Temple trust land No IR impact envisaged.
14	Development of the 1.5km long pathway with railing to the main temple, increase in width and edge protection wherever required.	NO	YES	Temporary livelihood may be impacted on 7 numbers of shops as the work will be carried out in front of these shops and possibility of loss of access is foreseen
15	Seating arrangements , viewing decks and toilet facilities	NO	NO	All the works will be executed within the premises of temple No IR impact envisaged.
16	Signage along the pathway and Temple premises.	NO	NO	This particular stretch is almost free and under the jurisdiction of temple trust During upgradation. No IR impact envisaged.
17	Improvement in the temple precinct	NO	NO	Works will be executed within the premises of temple No IR impact envisaged.
18	Construction of entrance gate	NO	NO	
19	Lodging facilities and langar hall	NO	NO	
20	Development of Solar lighting and Fire Fighting work			
21	Improvement in the drinking water facility for the approach areas	NO	NO	
22	Capacity building for temple committee members for O&M activities.	NO	NO	

84. It is clear from above **Table-5** that subproject will not result in any permanent land acquisition and resettlement impacts because all construction will be within the available land under the possession of Govt. of UK (Revenue Dept.), Gram Panchayat Bora (Durgadhar), Gram Panchayat Phalasi (Tungeshwar), Respective Temple Committees

Impacts during Operation Phase

85. Impacts on environmental conditions associated with the operation stage of the subproject components pertain to impacts due to enhanced tourist activities. The operation stage impacts shall be addressed through regulation of tourist movements, planning the extent of facilities and amenities in line with the carrying capacity which is taken care through Govt. of India, for the state including all potential tourist destinations.

86. No impact is anticipated on the ground water quality and surface water quality during the operation phase as there is no surface water body in vicinity to have an impact and there will be proper disposal of waste water. For this upgradation of already existing toilet block with septic tank and soak pits is being proposed at temple complex in both Durgadhar and Tungeshwar. Upgradation of Rain water harvesting structure is proposed at Mela ground in both Durgadhar and Tungeshwar and this collected water will be used for sanitation purposes.

87. The solid waste generated at Mela ground and temple complex during operation phase will be segregated and organic waste will be used for composting. In the DPR provision for the compost pit has been made in land of Gram Panchayat.

88. During operation phase impact on air quality will be due to vehicular movement to reach the main road from where access path is non motorable. But impacts won't exceed beyond the vehicular road since the pathway is a trekking path only.

89. During the operational phase, impacts on noise environment will be due to vehicular movement and Mela activities. The rise in noise levels will not be excessively high to cause human annoyance. However, ambient noise levels will be measured during Mela and duration of peak tourist movement.

90. Safety Measures: The safety measures along access path to temple will include railings, and canopy for rains in access path and display of 'Do and Don'ts'. The other safety features are explained below:

- Safety features to be included in the buildings (rest shelter on pathway) , installation of fire-fighting equipment with portable fire extinguishers and adequately wide staircase for escape during such eventuality.
- During natural calamities, the operations will be stopped and tourists will be safely evicted as per Disaster Management plan of the state.

91. Necessary first aid facilities will also be provisioned

92. Socio-Economic **Impacts:** Positive impact is anticipated in terms of employment opportunity as many skilled, semi-skilled and un-skilled personnel will get direct and indirect employment

during construction and operation phases. Added residential developments, commercial and business facilities and increased densities are expected to develop and enhance the subproject area.

93. The major advantages of implementation of the project will be:

(i) Placing of the temples on the Tourist map of Uttarakhand and India ;
(ii) Promotion of equity in development;
(iii) Improvement in the quality of life of the host community;
(iv) High quality of religious tourism experience to the visitors ;
(v) Building environmental and cultural awareness about site and its respect;
(vi) Positive experiences for both visitors and hosts; and
(vii) Financial benefits and empowerment for local people.

94. As the subproject location is away from any ecologically rich area no adverse impact on fauna and flora is anticipated due to the operation of the sub project.

Description of Planned Mitigation Measures

95. Screening of environmental impacts is based on the magnitude and duration of the impact. **Table 5** provides the potential environmental impacts and the mitigation measures including the responsibilities for implementing the same. The subproject site is located sufficiently away from Protected Areas and the components proposed will not impact any environmentally sensitive or protected areas. Interventions are proposed within available government lands and existing right-of-way.

Table 5: Summary of Environmental Impacts and Planned Mitigation Measures

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
1	**Location Impacts**				
1.1	Lack of sufficient planning to assure long term sustainability of the facilities and ensure protection specially from earthquake and other natural disasters	Permanent	Major	The design of all structures has been done considering earthquake coefficient of zone V and considerations are also there for sustainability of infrastructure during natural disasters. The site is not on the bank of any river or major stream.	PIU / DSC
2	**Design Impacts and Pre-construction Impacts**				
2.1	Consents, permits, clearances, no objection certificate (NOC), etc.	Permanent	Major	Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works. Acknowledge in writing and	PIU / DSC

				provide report on compliance all obtained consents, permits, clearance, NOCs, etc. Include in detailed design drawings and documents all conditions and provisions if necessary	
2.2	Layout of components to avoid impacts on the aesthetics of the site	Permanent	Major	The project components will not have any impacts on the temples. Hence no mitigation measures are warranted.	PIU / DSC
2.3	Slope stability related issues	Permanent	Minor	The access path to the temple is on slope, The designs of subproject components will include slope protection measures for uncovered slopes as pitching, vegetation, benching, etc.	PIU/DSC
2.4	Increased storm water runoff from alterations of the site's natural drainage patterns due to landscaping, excavation works, construction of parking lots, and addition of paved surface	Permanent	Moderate	Design of proposed components will enable efficient drainage and maintain natural drainage patterns.	PIU/DSC
2.5	Integration of energy efficiency and energy conservation programs in design of sub-project components	Permanent	Moderate	Following measures have been included in design for Energy Efficiency: • Usage of recyclable materials like wood substitutes. • Installation of BEE certified equipment • Usage of energy efficient lighting fixtures (LED and solar). • solar lighting in the Temple Complexes	PMU/PIU/DSC
3	**Construction Impacts**				
3.1	Construction Camps - Location, Selection, Design and Layout	Temporary	Moderate	Construction camp will be located within Government land and it will ensure that camp does not endanger any natural spring or local stream. Adequate sanitation facilities shall be provided at	Contractor / DSC

				camp site and no waste water will be discharged outside.	
3.2	Circulation plan during construction in the tourist destinations	Temporary	Moderate	Prior to commencement of site activities and mobilization on ground, the Contractor will prepare and get approved by the Engineer, a circulation plan during construction for safe passage of temple visitors during construction stage, including development of alternative access routes, traffic regulations, signages, etc., The Contractor with support of the PIU will carry out dissemination of these information and circulation plan at temple and all major access road to temple including village.	Contractor/ DSC/PIU
3.3	Impacts on flora and fauna	Temporary	Moderate	Conduct site induction and environmental awareness. Limit activities within the work area. Replant trees in the area using minimum ratio of 3 new trees for every 1 tree cut, if any. Replacement species must be approved by forest dept.	
3.4	Site clearance activities, including delineation of construction areas	Temporary	Moderate	The commencement of site clearance activities will be undertaken with due permission from the Environment Specialist of the DSC consultant to minimize environmental impacts. All areas used for temporary construction operations will be subject to complete restoration to their former condition with appropriate rehabilitation procedures.	Contractor / DSC
3.5	Drinking water availability	Temporary	Major	Sufficient supply of 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.	Contractor / DSC
3.6	Waste disposal	Permanent	Major	Location of disposal sites for	Contractor /

				demolition waste will be finalized by the Environmental Specialist of the DSC and he will confirm that disposal of the material does not impact the water body or environmentally sensitive areas and that no endangered / rare flora is impacted by such materials.	DSC
3.7	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.	Contractor / DSC
3.8	Soil Erosion	Temporary	Moderate	Slope protection measures will be undertaken as per design to control soil erosion along the access path to the temple, on the temple site	Contractor / DSC
3.9	Soil and Water Pollution due to fuel and lubricants, construction waste	Temporary	Moderate	The fuel storage and vehicle cleaning area will be stationed such that water discharge does not drain into the lake. Soil and water pollution parameters will be monitored as per monitoring plan.	Contractor / DSC
3.10	Siltation of water bodies due to spillage of construction wastes	Temporary	Moderate	No disposal of construction wastes will be carried out into any stream near the subproject site. Extraneous construction wastes will be transported to the pre-identified disposal site for safe disposal.	Contractor / DSC
3.11	Generation of dust	Temporary	Moderate	The contractor will take every precaution to reduce the levels of dust at construction site. Any fill site to be properly kept wet to minimize dust generation.	Contractor / DSC
3.12	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.	Contractor / DSC
3.13	Noise Pollution	Temporary	Moderate	Noise limits for construction equipment used in this project will	Contractor / DSC

				not exceed 75 dB (A).	
3.14	Material Handling at Site	Temporary	Moderate	Workers employed on mixing cement, lime mortars, concrete etc., will be provided with protective footwear and protective goggles. Workers, who are engaged in welding works, will be provided with welder's protective eye-shields. Workers engaged in stone breaking activities will be provided with protective goggles and clothing. The use of any toxic chemical will be strictly in accordance with the manufacturer's instructions. The Engineer will be given at least 6 working days' notice of the proposed use of any chemical. A register of all toxic chemicals delivered to the site will be kept and maintained up to date by the Contractor.	Contractor / DSC
3.15	Disposal of Construction Waste / Demolition 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 will be disposed off around the project site and in the village.	Contractor / DSC
3.16	Safety Measures During Construction	Temporary	Moderate	Adequate safety measures for workers during handling of materials at site will be taken up. The contractor has to comply with all regulations for the safety of workers. Precaution will be taken to prevent danger of the workers from fire, accidental injury 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.	Contractor / DSC
3.17	Clearing of	Temporary	Major	Contractor to prepare site	Contractor /

	Construction Camps and Restoration			restoration plans for approval by the Engineer. The plan is to be implemented by the contractor prior to demobilization. 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	DSC
4	**Operation and Maintenance impacts**				
4.1	Uncontrolled tourism flow	Temporary	Major	Tourism Master Plan will be implemented strictly to avoid uncontrolled tourism flow.	Tourism department
4.2	Safety risks	Temporary	Major	(i) Proper demarcation, provision of railings & flagging of the area towards valley side to minimize risks. (ii) On the access path to the temple necessary precaution measures to be observed by the visitors will be put up on boards.	Village Committee and Temple Committee
4.3	Unhygienic condition due to poor maintenance of sanitation facilities and irregular solid waste collection	Temporary	Severe	Village Committee and Temple Committee will carry out maintenance of the toilets, and carry out the regular collection and disposal of wastes to a designated waste treatment site for inorganic waste and to compost pit for organic waste. The septic tanks will be emptied regularly.	Village Committee and Temple Committee

V. ENVIRONMENT MANAGEMENT PLAN (EMP)

A. Institutional Arrangements :

96. 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) provides overall strategic guidance on technical supervision and project execution; and (v) ensures overall compliance with the loan covenants.

97. 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.

98. 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.

99. 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.

100. 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.

101. 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 will also assist the PMU and PIUs in meeting the relevant requirements of ADB, Government of Uttarakhand, and Government of India for project implementation. The PMC will report to and work under the overall guidance of the PMU. The scope of services of the PMC's will include 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.

102. 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 will report to and work under the overall guidance of the PIUs. The scope of services of the DSC will include 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.

103. 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 10 to 12 presents a generic EMP to guide the contractor in mitigating environmental impacts. In DPR stage EMP tables will be revised.

Responsibility for updating IEE during Pre- Construction and Construction

104. Responsibility for monitoring. During construction, DSC's Environmental Specialist and the designated representative engineer of the PIU will monitor the contractor's environmental performance. During the operation phase, monitoring will be the responsibility of the PMU. DSC's Environmental specialist will prepare monthly and quarterly report.

105. Responsibility for Reporting. PMU will submit to ADB semi-annual reports on implementation of the EMP and will permit ADB to field environmental review missions which will review in detail the environmental aspects of the project. Any major accidents having serious environmental consequences will be reported immediately. PMC's Environment safeguard Specialist will assist PMU for finalization semi-annual and annual progress reports.

Table 6: Pre-Construction EMP Table

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
Consents, permits, clearances, no objection certificate (NOC), etc.	Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.	Consents, permits, clearance, NOCs, etc.	PIU/DSC	PMU/PMC	check CFEs, permits, clearance, prior to start of civil works	PMU
	Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc.	Records and communications	PIU/DSC	PMU/PMC	Acknowledge upon receipt Send report as specified in CFE, permits, etc.	PMU
	Include in detailed design drawings and documents all conditions and provisions if necessary	Detailed design documents and drawings	Contractor	PMU and PMC PIU and DSC	Upon submission by contractor	Contractor
Establishment of baseline environmental conditions prior to start of civil works	Conduct documentation of location of components, areas for construction zone (camps, staging, storage, stockpiling, etc.) and surroundings (within direct impact zones). Include photos and GPS coordinates	Records	Contractor	PMU and PMC PIU and DSC	field visit	PMU
Erosion control	Develop an erosion control and re-vegetation plan to minimize soil loss and reduce sedimentation to protect water quality. Minimize the potential for erosion by	Erosion control and re-vegetation plan covering construction phase	Contractor	PMU and PMC PIU and DSC	field visit	PMU

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	balancing cuts and fills to the extent feasible. Identify and avoid areas with unstable slopes and local factors that can cause slope instability (groundwater conditions, precipitation, seismic activity, slope angles, and geologic structure). Minimize the amount of land disturbed as much as possible. Use existing roads, disturbed areas, and borrow pits and quarries when possible. Minimize vegetation removal. Stage construction to limit the exposed area at any one time. Minimize the amount of land disturbed as much as possible. Use existing roads, disturbed areas, and borrow pits and quarries when possible. Minimize vegetation removal. Stage construction to limit the exposed area at any one time.					
Utilities	Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during the construction phase. Require contractors to prepare a	List and maps showing utilities to be shifted Contingency plan	- DSC to prepare preliminary list and maps of utilities to be shifted - During detailed design phase,	PMU and PMC PIU and DSC	field visit	DSC – preliminary design stage Contractor – detailed design

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	contingency plan to include actions to be done in case of unintentional interruption of services. Obtain from the PIU and/or DSC the list of affected utilities and operators; If relocations are necessary, contractor will coordinate with the providers to relocate the utility.	for services disruption	contractor to (i) prepare list and operators of utilities to be shifted; (ii) contingency plan			stage
Social and Cultural Resources	Consult Archaeological Survey of India (ASI) or UK State Archaeology Department to obtain an expert assessment of the archaeological potential of the site. Consider alternatives if the site is found to be of medium or high risk. Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available. Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are	Chance find protocol	- PMC to consult ASI or UK State Archaeology Department - PMC to develop protocol for chance finds	PMU	field visit	PMC

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	protected and conserved.					
Sites for construction work camps, areas for stockpile, storage and disposal	Will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems, etc. Residential areas will not be considered so as to protect the human environment (i.e., to curb accident risks, health risks due to air and water pollution and dust, and noise, and to prevent social conflicts, shortages of amenities, and crime). Disposal will not be allowed near sensitive areas which will inconvenience the community. The construction camp, storage of fuel and lubricants should be avoided at the river bank. The construction camp site for intake well should be finalized in consultation with DSC and PIU.	List of pre-approved sites for construction work camps, areas for stockpile, storage and disposal Waste management plan	- DSC to prepare list of potential sites DSC to inspect sites proposed by contractor if not included in pre-approved sites	PMU PIU	field visit	DSC
Sources of construction materials	Use quarry sites and sources permitted by government. Verify suitability of all material sources and obtain approval from PIU. If additional quarries are required after	Permits issued to quarries/sources of materials	Contractor PMC and DSC to verify sources (including permits) if	PMU and PIU	Upon submission by contractor	PMC and DSC

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	construction has started, obtain written approval from PIU. Submit to DSC on a monthly basis documentation of sources of materials.		additional is requested by contractor			
Access	Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites. Schedule transport and hauling activities during non-peak hours. Locate entry and exit points in areas where there is low potential for traffic congestion. Keep the site free from all unnecessary obstructions. Drive vehicles in a considerate manner. Coordinate with the Traffic Police Department for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours. Notify affected sensitive receptors by providing sign boards with information about the nature and duration of	Traffic management plan	Contractor	PIU and DSC	field visit	Contractor

Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	construction works and contact numbers for concerns/complaints. Provide free access to households along the alignments of raw and clear water transmission routes during the construction phase.					
Occupational health and safety	Comply with IFC EHS Guidelines on Occupational Health and Safety Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project. Include in H&S plan measures such as: (i) type of hazards in the intake wells site; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related	Health and safety (H&S) plan	Contractor	PMU and PMC PIU and DSC	field visit	Contractor

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

Table 7: EMP Table during Construction Phase

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
Erosion hazards	Save topsoil removed during excavation and use to reclaim disturbed areas, as soon as it is possible to do so. Use dust abatement such as water spraying to minimize windblown erosion. Provide temporary stabilization of disturbed/excavated areas that are not actively under construction. Apply erosion controls (e.g., silt traps) along the drainage leading to the water bodies. Maintain vegetative cover within road ROWs to prevent erosion and periodically monitor ROWs to assess erosion. Clean and maintain catch basins, drainage ditches, and culverts regularly. Conduct routine site inspections to assess the effectiveness of and the maintenance requirements for erosion and sediment control systems.	Erosion control and re-vegetation plan	Contractor	PIU and DSC PIU to submit EMP monitoring report to PMU	-daily visual inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon season and if corrective action is required) ndom inspection by PMU, PIU, PMC and/or DSC	Contractor
Impacts on water quality	Schedule construction activities during non-monsoon season, to the maximum extent possible.	Work schedule	Contractor	PIU and DSC PIU to submit EMP monitoring report to PMU	-daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during monsoon	
	Ensure drainages and water bodies within the construction zones are kept free of obstructions.	Visual inspection				
	Keep loose soil material and stockpiles out of drains and flow-lines.	Visual inspection				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	Avoid stockpiling of excavated and construction materials (sand, gravel, cement, etc.) unless covered by tarpaulins or plastic sheets.	Visual inspection			season and if corrective action is required) -random inspection by PMU, PIU, PMC and/or DSC	
	Re-use/utilize, to maximum extent possible, excavated materials.	condition in waste management plan				
	Dispose any residuals at identified disposal site (PIU/DSC will identify approved sites).	condition in waste management plan				
	Dispose waste oil and lubricants generated as per provisions of Hazardous Waste (Management and Handling) Rules, 1989.	condition in waste management plan				
	Refuel equipment within the designated refueling containment area away from drainages, *nallahs*, or water body.	condition in list of pre-approved sites for construction work camps, areas for stockpile, storage and disposal				
	Inspect all vehicles daily for fluid leaks before leaving the vehicle staging area, and repair any leaks before the vehicle resumes operation.	Vehicle inspection report				
Impacts on air quality	Conduct regular water spraying on stockpiles.	Visual inspection No complaints from sensitive receptors Records	Contractor	PIU and DSC	-daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during dry season and if corrective action is required) Indom inspection by PMU, PIU, PMC	Contractor
	Conduct regular visual inspection in the construction zones to ensure no excessive dust emissions.	Visual inspection				
	Maintain construction vehicles and obtain "pollution under control" certificate from UEPPCB.	PUC certificates				
	Obtain CFE and CFO for hot mix	CTE and CTO				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	plants, crushers, diesel generators, etc., if to be used in the project.				and/or DSC	
Noise and vibrations impacts	Limit construction activities in temple complexes and other important areas to daytime only. Plan activities in consultation with PIU/DSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance.	Work schedule	contractor	PIU and DSC	-daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent during noise-generating activities and if corrective action is required) ındom inspection by PMU, PIU, PMC and/or DSC	Contractors
	Minimize noise from construction equipment by using vehicle silencers and fitting jackhammers with noise-reducing mufflers.	Report on ambient noise level monitoring within direct impact zones				
	Avoid loud random noise from sirens, air compression, etc.	zero incidence				
	Require drivers that horns not be used unless it is necessary to warn other road users or animals of the vehicle's approach.	feedback from receptors within direct and direct impact zone				
	If specific noise complaints are received during construction, the contractor may be required to implement one or more of the following noise mitigation measures, as directed by the project manager: Locate stationary construction equipment as far from nearby noise-sensitive properties, such as the hospital, as possible. Shut off idling equipment. Reschedule construction operations to avoid periods of noise annoyance identified in the complaint. Notify nearby residents whenever extremely noisy work will be occurring.	- Complaints addressed satisfactory - GRM records				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
Impacts on flora and fauna	Conduct site induction and environmental awareness.	Records	Contractor	PIU and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if corrective action is required) ındom inspection by PMU, PIU, PMC and/or DSC	Contractor
	Limit activities within the work area.	Barricades along excavation works				
	Replant trees in the area using minimum ratio of 2 new trees for every 1 tree cut. Replacement species must be approved by Chief Wildlife Warden of Bihar State Forest Department.	Number and species approved by Bihar State Forest Department				
Impacts on physical cultural resources	Ensure no damage to structures/properties adjacent to construction zone.	- Visual inspection - any impact should be addressed by project resettlement plan	Contractor coordination with PIU and DSC for any structures within WTP site and construction zone	and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if corrective action is required) ındom inspection by PMU, PIU, PMC and/or DSC	contractor
	Provide sign boards to inform nature and duration of construction works and contact numbers for concerns/complaints.	- no complaints received - photo-documentation				
	Increase the workforce in WTP components near the hospital and other sensitive receptors.	- Records of workers deployment - Work schedule				
	Implement good housekeeping. Remove wastes immediately.	Visual inspection No stockpiled/ stored wastes				
	Ensure workers will not use nearby/adjacent areas as toilet facility.	No complaints received Sanitation facilities for use of workers				
	Coordinate with PIU/DSC for transportation routes and schedule. Schedule transport and hauling activities during non-peak hours. Communicate road detours via visible boards, advertising, pamphlets, etc.	- Approved routes in traffic management plan				
	Ensure heavy vehicles do not use					

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	narrow local roads, except in the immediate vicinity of delivery sites.					
	Provide instructions on event of chance finds for archaeological and/or ethno-botanical resources. Works must be stopped immediately until such time chance finds are cleared by experts.	condition in chance find protocol				
Impact due to waste generation	Prepare and implement a waste management plan. Manage solid waste according to the following hierarchy: reuse, recycling and disposal. Include in waste management plan designated/approved disposal areas. Coordinate with PIU/DSC for beneficial uses of excavated soils or immediately dispose to designated areas. Recover used oil and lubricants and reuse; or remove from the site. Avoid stock piling and remove immediately all excavated soils, excess construction materials, and solid waste (removed concrete, wood, trees and plants, packaging materials, empty containers, oils, lubricants, and other similar items). Prohibit disposal of any material or wastes (including human waste) into drainage, *nallah*, or watercourse.	condition in waste management plan	Contractor	PIU and DSC	-daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if corrective action is required) ndom inspection by PMU, PIU, PMC and/or DSC	Contractor
Impacts on occupational health and safety	Comply with IFC EHS Guidelines on Occupational Health and Safety	- Visual inspection - Records	Contractor	PIU and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if	Contractor
	Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively.	- Visual inspection - Work schedule - Noise level monitoring in work area				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	Provide H&S orientation training to all new workers to ensure that they are apprised of the rules of work at the site, personal protective protection, and preventing injury to fellow workers.	- Records - Condition in UK plan			corrective action is required) ındom inspection by PMU, PIU, PMC and/or DSC	
	Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site as well as at construction camps.	- Visible first aid equipment and medical supplies - Condition in UK plan				
	Provide medical insurance coverage for workers.	Records				
	Secure construction zone from unauthorized intrusion and accident risks.	- Area secured - Trenches barricaded				
	Provide supplies of potable drinking water.	- Supply of water				
	Provide clean eating areas where workers are not exposed to hazardous or noxious substances.	- Workers area				
	Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted.	- Records - Condition in UK plan				
	Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas.	- Visual inspection - Condition in UK plan				
	Ensure moving equipment is outfitted with audible back-up alarms.	- Construction vehicles - Condition in UK plan				
	Mark and provide sign boards in the construction zone, and areas for storage and disposal. Signage shall be in accordance with international	- Visible and understandable sign boards in construction zone				

Potential Impact	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of Monitoring	Source of Funds
	standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate.	- UK plan includes appropriate signs for each hazard present				
Impacts on socio-economic activities	Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	Visible and understandable sign boards in construction zone	Contractor	PIU and DSC	- daily inspection by contractor supervisor and/or environment specialist - weekly visual inspection by DSC (more frequent if corrective action is required) indom inspection by PMU, PIU, PMC and/or DSC	Contractor
	Employ at least 50% of the labor force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available.	Employment records				

Table 8: Operation Phase Environmental Management Plan

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
1	Environmental Conditions	The periodic monitoring of the noise level in the subproject area as suggested in the monitoring plan through an approved monitoring agency.	Monitoring results and relevant standards	Tourism department through Pollution Monitoring Agency	PIU	As per monitoring Plan	Tourism dept./ PMU

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
2	Uncontrolled tourism flow	Regulation as per the Carrying Capacity Assessment. (Under process by MoT, for the project area)	Number of Tourist visiting	Tourism department	Temple committee and District Administration	Every year during tourist season	Tourism Department /PMU
3	Unhygienic condition due to poor maintenance of sanitation facilities and irregular solid waste collection	Tourism department will carry out maintenance of the toilets, and carry out the regular collection and disposal of wastes to a designated waste treatment site. The solid waste will be segregated and organic waste will be disposed off in compost pits and inorganic waste at the site identified by the contractor.	Maintenance schedule of facilities and infrastructure created	Temple committee	Tourism department	Every year during tourist season	Tourism Department /PMU
4	Demarcation and Flagging	Proper demarcation & flagging of the area towards valley side. Necessary 'Do and Don'ts' will be display on boards on the access path.	Flags and boards of 'Do and Don'ts'	Temple Committee	Tourism department	Every year during tourist season	Tourism Department /PMU
5	Natural Disasters	Necessary procedures to be followed by the visitors during the natural disasters shall be written at prominent locations.	Warnings of disasters by Meteorological Department	District Administration	Uttarakhand Government	Every year during tourist season and monsoon season	Government of Uttarakhand

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

Table 9 summarizes site- and activity-specific plans to be prepared as per EMP tables.

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

B. Environmental Monitoring Plan :

106. Environmental monitoring will be done during construction in three levels; namely monitoring development of project performance indicators done by the DSC Environmental Specialist, monitoring implementation of mitigation measures done by the Contractor; and overall regulatory monitoring of the environmental issues done by the PMU Environmental Specialist. To ensure the effective implementation of mitigation measures and Environmental Management Plan during construction and operation phase of the sub-project, it is essential that an effective Environmental Monitoring Plan be followed as given in **Table 10**. The proposed monitoring of all relevant environmental parameters, with a description of the sampling stations, frequency of monitoring, applicable standards and responsible agencies are presented.

Table 10: Monitoring Plan for Kartikeya Swamy Lot 1 Subproject (Preconstruction and Construction Phase)

Sl. No.	Field (Environmental Attribute)	Phase	Parameters to be Monitored	Locations	Frequency	Responsibility	Cost (INR/US $)
1	Air Quality	During pre construction phase	CO, NOx, PM_{10}, $PM_{2.5}$, and SO_2	Mela Ground, access paths, and Temple sites	Once in pre Construction phase to establish baseline	Contractor, DSC/ Tourism department through approved Monitoring Agency	As per envt. budget
		During Construction Phase			Once in every three months (except monsoon season) during construction and operation stages		
2	Water quality	During pre construction phase	TDS, TSS, pH, Hardness, BOD, Faecal Coli form	Mela Grounds, access paths and Temple sites	Once in pre Construction phase to establish baseline	Contractor, DSC/ Tourism department through approved Monitoring Agency	As per envt. budget
		During Construction Phase			Once in every three months (except monsoon season) during construction and operation stages		
		Operation Phase			Once in season except monsoon season for initial 2 years		

Sl. No.	Field (Environmental Attribute)	Phase	Parameters to be Monitored	Locations	Frequency	Responsibility	Cost (INR/US $)
3	Noise Levels	During pre construction phase	Noise quality as per National Ambient Noise Standards on db (A) scale	Mela Grounds, access paths and Temple sites	Once in pre Construction phase to establish baseline	Contractor, DSC/ Tourism department through approved Monitoring Agency	As per envt. budget
		During Construction Phase			Once in every three months (except monsoon season) during construction and operation stages		
		Operation Phase			Once in season pre and post monsoon for initial 2 years		

C. Capacity Building :

107. The Environmental Specialist of the DSC will provide the basic training required for environmental awareness followed by specific aspects of infrastructure improvement Projects along with Environmental implications for projects. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Programme and the requirements of the project. The entire training would cover basic principles of environmental assessment and management; mitigation plans and programmes, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in **Table 11** below. This training program is intended for the entire destination and is not just specific to this package.

Table 11: Training Modules for Environmental Management (common for entire project)

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

D. EMP Implementation Cost:

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

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

110. The costs of water sprinkling for dust suppression and providing personal protective equipment's to construction workers shall borne by contractor as part of conditions of contract. In addition the sources of funds for Mitigation measures during construction stage including monitoring during construction stage are also to be borne by the contractor. These are deemed to be included as part of the contract price amount quoted by the contractor for the works. The costs of components for monitoring in operation stage and the capacity building costs are to be funded by the PMU. The EMP cost is given in the Table 12 below.

Table 12: Environmental Budget

S.N.	Particulars	Stages	Unit	Total number	Rate (INR)	Cost (INR)	Source of fund
A. Monitoring Measures							
1	Air quality monitoring	Construction	Per sample	12	10,000	120,000	Contractor budget
2	Noise Levels – silence zones	Construction	Per location	12	4,000	48,000	Contractor budget
3	Ambient Air Quality	Operation	Per Sample	12	10,000	120,000	PMU
4	Ambient Noise Quality	Operation	Per Sample	12	4,000	48,000	PMU
	Sub- Total (A)					**3, 36,000**	
B.	**Capacity Building – Training cost**						
1	Sensitization Workshop	Pre-Construction	L.S	2		3,00,000	PMU
2	Training Session I	Construction	L.S	2		3,00,000	PMU
3	Training Session II	Construction	L.S	2		3,00,000	PMU
Sub -Total (B)						**9,00,000**	
Total (A+B) INR						**12, 36, 000/-**	

E. Environmental Monitoring and Reporting :

111. 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.

112. 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. Process For Consultations Followed :

113. 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.

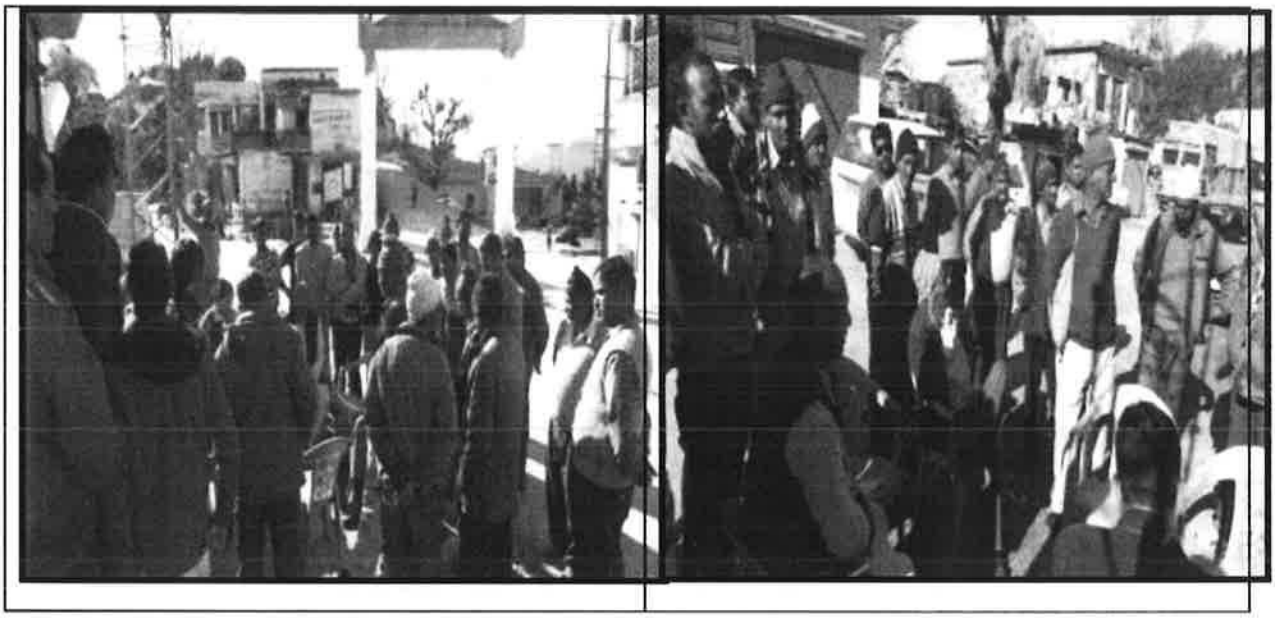
114. In view of this, the need for holding a public hearing is not perceived at this stage. However in compliance with the ADB's guidelines, focused public consultations were undertaken during the site visits in the sub project areas. Residents of the area were informed about the proposed sub-project and their views were obtained. During the preparation of this IEE, consultations have been held with the officials of Uttarakhand Tourism Department, District collector, Garhwal Mandal Vikas Nigam (GMVN), Forest Department, and other Stakeholders and agencies in Rudrapraya district. The local level consultations were also carried out on February 08, 20134 by the other subject experts and Environmental expert DSC. The locals suggested that locals come for cremation near the project site. This should be stopped. The consultants discussed this issue with the District Tourism Development Officer and came to know that administration has approved.

115. The Team Leader DSC and Environmental Expert of DSC also had consultations with the District Collector Development Officer on February, 2014 for his comments and suggestions for the successful implementation of the project. The consultants further explained the department people, tourism people and Mandir committee in the meeting.

116. The process of consultations was taken up as an integral part of the sub-project in accordance with ADB Guidelines and following objectives:

- ✓ To educate the general public, specially potentially impacted or benefited communities / individuals and stakeholders about the proposed sub project activities;
- ✓ To familiarize the people with technical and environmental issues of the sub project for better understanding;
- ✓ To solicit the opinion of the communities / individuals on environmental issues and assess the significance of impacts due to the proposed development;
- ✓ To foster co-operation among officers of PIU, the community and the stakeholders to achieve a cordial working relationship for smooth implementation of the sub project;
- ✓ To identify the environmental issues related to the proposed activity.

117. During the consultations local residents and other stakeholders of subproject area opined that there are limited tourism infrastructures in the region and the tourist inflow is minimal. The subproject implementation will help improvement in infrastructures and publicity about the region. They demanded faster implementation of the subproject.



Extensive consultations were made with stakeholders (Temple Trust Committee, Village Panchayat, Local Villagers, Shopkeeper, Civil Society/Govt. Officials etc.) to make them aware with the proposed works. Meetings were also organized in Rudraprayag under the chairmanship of District Collector regarding the proposed works **Annexure 2.**

118. The objectives of stakeholders' consultations were (i) To inform the stakeholders with the components of the subproject (ii) To seek their views on the proposed work (iii) To ensure their participation from planning and execution till operation and maintenance.(iv) To explore scope of livelihood generation after the sub-project execution. Key stakeholders identified for consultation were:

(I) Temple Trust Committee
(II) Village Panchayat Samiti
(III) Local Villagers
(IV) Shopkeepers and Business Bodies
(V) Civil Society/Govt. Officials

Summary of discussion and views of Affected Persons (dt 13th Dec, 2014) Near Main entrance gate of Temple, Tungeshwar

Consultation was made with all the APs regarding proposed work and its impact on their businesses and provision of R& R under this project. They were happy to know that compensation provision is made in case business is interrupted. All have appreciated for this work and suggested that work should be taken in such a way that their business is not disturbed for a long time. They also requested that drain should be make in the street, so water logging problem cannot arise.

Stakeholders welcomed the initiative of Tourism Department with assistance of ADB for infrastructure development works in Kartikey swami, Durgadhari and Tungeshwar Temple and its vicinity. They expected increase in tourist inflow after the execution of the sub-project as presently site lacks basic amenities in all the proposed locations. During consultation, Temple and Village Panchayat have assured to provide all kind of support to the project. They were agreed with the proposed design components, being worked out in regular consultation with them.

They were enthusiastic with the interventions, which will attract more tourists towards these attractions and compel them to stay for longer duration, will offer strong possibilities for better businesses.

<table>
<tr><th>S. No.</th><th>Date</th><th>Location</th><th>Persons Consulted</th><th>Issues Discussed</th></tr>
<tr><td>1</td><td>18.2.14</td><td>Durgadhar Bazar</td><td>villagers</td><td>Discussed about the importance of Mandir and village details, tourist inflow etc.
Tourist inflow data
<table>
<tr><th>S.No.</th><th>Name of the Mela/Fair</th><th>Month</th><th>No. of Tourists</th></tr>
<tr><td>1</td><td>Shivratri</td><td>March</td><td>Villagers of 25-30villages</td></tr>
<tr><td>2</td><td>Nanda Amastmi</td><td>August</td><td>Villagers of 30-35 villages</td></tr>
<tr><td>5</td><td>Navratri</td><td>Twice in year</td><td>300-350 per day</td></tr>
</table></td></tr>
<tr><td>2</td><td>18.2.14</td><td>Phalasi village</td><td>villagers</td><td>Gram Panchayat: Phalasi, Block: Augustmuni (32 kms), District: Rudraprayag (22kms)
• Connectivity: vehicular road up to village
• Is there no Heritage structure within base villages
• Is there any temple trust/village panchyat land available within base villages: yes
Population structure of these villages</td></tr>
</table>

<table>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>
<table>
<tr><th>Household</th><th>population</th><th>castes</th><th>livelihood</th></tr>
<tr><td>300</td><td>1700</td><td>Bhartwal, Bhatt, Bhandari, Jagwan, Negi, Rawat, Butola, Gusai</td><td>Agriculture work, Labours, Govt. Job (50-60 families migrated for job)</td></tr>
</table>

Tourist Inflow Data
<table>
<tr><th>S.No.</th><th>Name of the Mela/Fair</th><th>Month</th><th>No. of Tourists</th></tr>
<tr><td>1</td><td>Shivratri</td><td>March</td><td>Villagers of 20-25 villages</td></tr>
<tr><td>2</td><td>Janamastmi</td><td>August</td><td>Villagers of 20-25 villages</td></tr>
<tr><td>3</td><td>Sawan Maas</td><td>July</td><td>200-250 per day</td></tr>
<tr><td>4</td><td>Maagh Maas</td><td>December</td><td>200-250 per day</td></tr>
<tr><td>5</td><td>Navratri</td><td>Twice in year</td><td>Villagers of 20-25 villages</td></tr>
</table>
</td>
</tr>
<tr>
<td>3</td>
<td>18.2.14</td>
<td>Durgadhar village</td>
<td>Villagers</td>
<td>Village: Durgadhar , Gram sabha: Bora, Block: Augustmuni, District: Rudraprayag

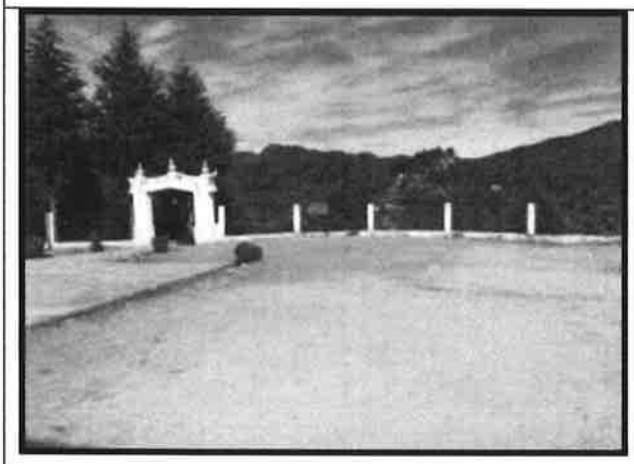
connected with vehicular road (District-33kms, Rudraprayag-50 kms)
There is no heritage structure within the vicinity
Mandir committee land is for the infrastructure development

Tourist inflow data
<table>
<tr><th>S.No.</th><th>Name of the Mela/Fair</th><th>Month</th><th>No. of Tourists</th></tr>
<tr><td>1</td><td>Nanda Amastmi</td><td>August-Sept.</td><td>Villagers of 4-7 villages</td></tr>
</table>
</td>
</tr>
</table>

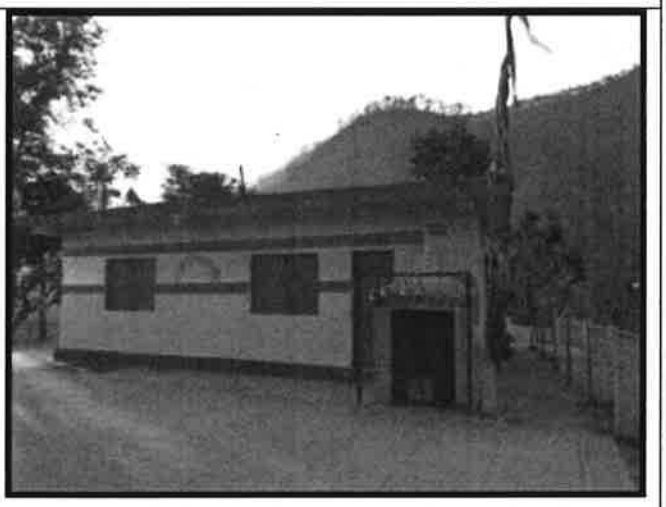
<table>
<tr><td></td><td></td><td></td><td></td><td>
<table>
<tr><td>2</td><td>Navratri</td><td>Twice in year</td><td>200-300 per day</td></tr>
<tr><td>3</td><td>Per day</td><td></td><td>20-50</td></tr>
</table>
Population structure of these village
<table>
<tr><th>Household</th><th>population</th><th>castes</th><th>livelihood</th></tr>
<tr><td>300</td><td>1600</td><td>Gusai (150HH),
Negi (10HH),
Kaitheith (10HH),
Tamtalu (130HH)</td><td>Agriculture work, Labours, Govt. Job (army, police, teachers, politicians)</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>21.06.14</td><td>Kartikeya Swami</td><td>Mandir samiti members and gram sabha members</td><td rowspan="3">Discussion:

Land issues, NOC and O&M issues with Mandir Committee members and gram sabha members and they said they do not have any problem to provide land for the development ofthe site, Infact they expressed happiness that Tourism Department is going to develop this site. They also said mandir Committee and gram sabha is ready to do operation and maintenance of the development work. Mandir Committee assured said that they will help during the implementation period wherever required.</td></tr>
<tr><td>5</td><td>22.06.14</td><td>Durgadhari mandir</td><td>Mandir samiti members and gram sabha members</td></tr>
<tr><td>6</td><td>23.06.14</td><td>Tungeshwar temple</td><td>Mandir samiti members and gram sabha members</td></tr>
<tr><td>7</td><td>03.08.14</td><td>Tungeshwar temple</td><td>Mandir samiti members and gram sabha members,shop keepers</td><td>Sub-project components, ADB safeguard policy, NOC requirement.</td></tr>
</table>

Photos: Durgadhar Temple

	
View of Durgadhar Temple	Vacant trust land within temple premises.
	
Pathway to the temple	Vacant trust land
	
Entrance gate of Temple	Existing Stairs of temple

Photos: Tungeshwar Temple

	
View Of Entrance Gate	Existing Pathway
	
Vacant land along the pathway for construction of toilet and sitting arrangement	View of Temple premises
	
View of Tungeshwar Temple	View Of Entrance Gate

B. Future Consultation and Information Disclosure:

119. 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 redressed cell will be set up within the PIU to 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, an extensive project awareness campaigns will be carried out.

Information disclosure

120. Electronic version of the 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 for the same to the Project Director.

121. 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 :

122. The PIU will make the public aware of the Grievance Redress Mechanism (GRM) through public awareness campaigns. Grievances can be filed in writing using the Complaint Register and Complaint Forms or by e-mail or by phone with any member of the PIU. The E-mail IDs and contact phone number of the PIU will serve as a hotline for complaints and will be publicized through the media and placed on notice boards outside their offices and at construction sites. The safeguard documents made available to the public in an accessible version will include information on the GRM and will be widely disseminated by the safeguards officers in the PMU and PIUs with support from the NGO engaged to implement the Community Awareness Program.

123. The PIU will convene Grievance Redress Committees (GRC) within one week of the voiced grievance at the project level consisting of members of local government, NGOs, project staff, and representatives of the affected people. Decisions on the grievance are to be made within 15 days of committee forming. If the grievance cannot be solved, the PMU is notified to further advice on the situation with higher government and legal bodies.

124. The GRC will ensure rights of vulnerable and poor are included. The grievance mechanism will be scaled to the risks and adverse impacts of the Project. It will address affected people's concerns and complaints promptly, using an understandable and transparent process that is gender responsive, culturally appropriate, and readily accessible to all segments of the affected people at no costs and without retribution. The mechanism developed will be in a manner that it shall not impede access to the existing judicial or administrative remedies. The affected people, if any, will be appropriately informed about the mechanism

VII. FINDINGS AND RECOMMENDATIONS

125. The proposed subproject components do not involve any interventions in and around the natural and cultural heritage destinations and have less significant (direct/indirect) environmental impacts. It is expected that the proposed subproject will enhance economic growth and provision of livelihood opportunities for local communities through tourism infrastructure development with a focus on preservation and development of natural and cultural heritage and incidental services. The proposed Project under the Facility is provided to support the State of Uttarakhand, to enhance and develop the tourism sector as a key driver for economic growth.

126. This IEE has identified minor likely impacts on water, air and noise during construction and operation period and has defined mitigation measures. Those mitigation measures will be implemented and monitored during the sub-project execution. Further, the provision of environmental infrastructure, including access to sanitation and waste management facilities within the tourist areas, will better the environmental conditions and minimize the pollution related and aesthetic quality.

127. The specific management measures laid down in the IEE will effectively address any adverse environmental impacts due to the subproject. 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.

VIII. CONCLUSION

128. On the basis of the IEE It is expected that the proposed project components have only minor, negative, localized, temporary and less significant environmental impacts. These impacts can be easily mitigated through adequate mitigation measures and regular monitoring during the Design, Construction and Post Construction Phase of the project. It is recommended that UTDB should have monitoring responsibility in environmental issues of all program components during operational phase to ensure the environmental sustenance.

129. In concluslon, the sub-project will have overall beneficial impacts after completion in terms of tourism development. Negative impacts on water, air quality and noise levels during civil works & operation phase, which will be appropriately monitored and adequately mitigated. This report has not identified any comprehensive, broad, diverse or irreversible adverse impacts caused by the sub project. It is recommended that project can be implemented with proper mitigation measures to protect the environment.

130. 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

Natural, Heritage & Cultural

Instructions:

1. The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer.
2. This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
3. Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: IITIDP – Development of tourist facilities at Kartikeya Swami Temple.

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		√	No underground activity within the temple premises.
▪ Cultural heritage site		√	Both the sites of Tungeswar and Durgadhari temple are cultural heritage sites having legendry significance.
▪ Protected Area		√	Tungeswar and Durgadhari temple land belongs to Temple Trust and Mandir Samiti for that reason no NOC is required from Forest Department.
▪ Wetland		√	
▪ Mangrove		√	NA

▪ Protected Area		√	Tungeswar and Durgadhari temple land belongs to Temple Trust and Mandir Samiti for that reason no NOC is required from Forest Department.
▪ Wetland		√	
▪ Mangrove		√	NA
▪ Estuarine		√	NA
▪ Buffer zone of protected area		√	Project site is not coming under buffer zone
▪ Special area for protecting biodiversity		√	There is no special area for protecting biodiversity within the project influence area.
▪ Bay		√	
B. Potential Environmental Impacts Will the Project cause.			
▪ Encroachment on historical/cultural areas?		√	Project is not encroaching any historical and cultural area
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?		√	Durgadhar and Tungeswar temple located in Mandir samiti (Temple Committee) Land
▪ Impacts on the sustainability of associated sanitation and solid waste disposal systems?		√	These impacts shall result in the event of the sanitation and solid waste systems not being developed in the proposed area.
▪ Dislocation or involuntary resettlement of people?		√	No re-settlement will be done within the project area.
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		√	Project will not have any adverse impact on poor, women, and children group
▪ Accident risks associated with increased vehicular traffic, leading to loss of life?		√	Project area is not much crowded, so there is less chance of accident.
▪ Increased noise and air pollution resulting from increased traffic volume?	√		Adoption of the mitigation measures shall effectively address such impacts during construction and post construction.

▪ Occupational and community health and safety risks?		√	Proper precaution will be taken on occupational and community health during implementation time.
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?		√	No risk and vulnerabilities envisaged during project construction and operation.
▪ Generation of dust in sensitive areas during construction?	√		Envisaged during the construction activities, especially for activities within the area. Adoption of the mitigation measures shall effectively address such impacts during construction. No blasting activity. Magnitude of civil works is very less and habitations being far, not much significant impacts due to noise and vibration envisaged.
▪ Requirements for disposal of fill, excavation, and/or spoil materials?	√		
▪ Noise and vibration due to blasting and other civil works?	√		
▪ Temporary silt runoff due to construction		√	During construction time, contractor will ensure proper silt runoff. Also there is no major construction activity
▪ Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction?		√	No ground water usage for project works.
▪ Long-term impacts on local hydrology as a result of building hard surfaces in or near the building?		√	Not envisaged
▪ Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		√	Augmentation of Existing water supply and sanitation system will support population influx during project construction and operation period. Labour from nearby areas shall be hired.
▪ Social conflicts if workers from other regions or countries are hired?		√	As per ADB guideline, 50% labour will be engaged from the local area/project site and rest may be from the other regions.
▪ Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?		√	There is no high tension electric line within the project sites.
▪ Risks to community health and safety caused by management and disposal of waste?		√	Very minor waste will be generated and that will not affect community health.

▪ Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?		√	Proper precaution will be taken by the implementing agency during executing the project.

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.	**Yes**	**No**	**Remarks**
▪ Is the Project area subject to hazards such as earthquakes, floods, landslides, tropical cyclone winds, storm surges, tsunami or volcanic eruptions and climate changes (see Appendix I)?	√		The sub project sites are prone to earthquakes and frequent landslides as area lies in seismic zone IV .
▪ Could changes in precipitation, temperature, salinity, or extreme events over the Project lifespan affect its sustainability or cost?		√	The project site will not hamper the precipitation, temperature, salinity of the area for future sustainability.
▪ Are there any demographic or socio-economic aspects of the Project area that are already vulnerable (e.g. high incidence of marginalized populations, rural-urban migrants, illegal settlements, ethnic minorities, women or children)?		√	The project will not affect the demographic or socio-economic aspects of the project sites.
• 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)?		√	The project will not affect the climate and surrounding environment

Annexure 2 : Minutes of the meeting held at Rudraprayag on 22 February 2014

दिनांक 22 फरवरी 2014 को जिलाधिकारी, रूद्रप्रयाग की अध्यक्षता में एशियन डेवलपमेंट बैंक द्वारा वित्त पोषित उप परियोजना के SAR की प्रथम बैठक की कार्यवाही का कार्यवृत्त

उपस्थिति –

1– श्री एम0एस0 राणा, मुख्य विकास अधिकारी, रूद्रप्रयाग।
2– श्री अजय शर्मा, उप प्रभागीय वनाधिकारी, रूद्रप्रयाग।
3– श्री रवीन्द्र निराला, वन क्षेत्राधिकारी, केदारनाथ वन्यजीव प्रभाग, गोपेश्वर–चमोली।
4– श्री इन्द्रजीत बोस, अधिशासी अभियन्ता, लोक निर्माण विभाग, रूद्रप्रयाग।
5– श्रीमती सीमा नौटियाल, प्र0 जिला पर्यटन विकास अधिकारी, रूद्रप्रयाग।
6– श्री रंजन मलिक, ई0एस0एस0।
7– पल्लवी, आर्टिस्ट इक्को टूरिज्म प्लानर, डी0एस0सी0।
8– श्री विनोद कुमार चमोली, इन्चार्ज डिजाइन सुपरविजन कन्सल्टेन्ट(डी0एस0सी0)।
9– श्री नरेश चमोली, पी0एम0यू0 आई0डी0आई0पी0टी0, देहरादून।
10– श्री यशवन्त सिंह नेगी, कोषाध्यक्ष, मन्दिर समिति फलासी।
11–श्री योगम्बर नेगी पूर्व अध्यक्ष छात्र संघ अगस्त्यमुनि।
12–श्री शत्रुघ्न नेगी अध्यक्ष, श्री कार्तिकेय मन्दिर समिति।
13–श्री वीरेन्द्र सिंह रावत उपाध्यक्ष, महाकवि कालीदास समिति कविल्ठा।
14–श्री सुरेशानन्द गौड, महामंत्री महाकवि कालीदास जन्म भू स्मारक समिति कविल्ठा।
15–श्री वीरपाल सिंह नेगी, सामाजिक कार्यकर्ता ग्राम क्यूड़ी।
16–श्री कुलदीप सिंह बर्त्वाल, सामाजिक कार्यकर्ता, कुण्डा दानकोट।
17–श्री सूरज सिंह नेगी, पूर्व प्रदेश प्रवक्ता, उत्तराखण्ड युवा कॉंग्रेस।

सर्वप्रथम जिला पर्यटन विकास अधिकारी, द्वारा बैठक में सभी अधिकारियों, डी0एस0सी0 टीम, जनप्रतिनिधियों व आगन्तुकों का अभिवादन एवं स्वागत किया गया तथा बैठक में उपस्थित समस्त सदस्यों का परिचय प्राप्त किया गया। जिलाधिकारी महोदय द्वारा डी0एस0सी0 टीम से जानकारी चाही गयी कि किन–किन योजना पर कार्य किया जाना है। जिस पर श्री विनोद चमोली इन्चार्ज डी0एस0सी0 द्वारा अवगत कराया गया कि ए0डी0बी0 के अन्तर्गत जनपद में कार्तिक स्वामी एवं तुंगनाथ ट्रैकिंग रूट का विकास, मन्दिरों का सौन्दर्यीकरण, एवं इन स्थलों पर आने वाले ग्रामों को रूरल टूरिज्म के रूप में विकसित किया जाना है, जिस पर बैठक में निम्न कार्यों को किये जाने हेतु प्रस्ताव रखे गये –

1– **कार्तिक स्वामी का पर्यटन विकास** – कार्तिक स्वामी में निम्न कार्य किये जा सकते हैं –

- कनकचौरी से कार्तिक स्वामी तक 3.5 किमी0 खण्डिंजा मार्ग का निर्माण।
- रास्ते पर जगह–जगह रैलिंग का निर्माण।
- पैदल मार्ग पर बैंचेज की स्थापना।
- मन्दिर से 150 मीटर नीचे व्यू–प्वाइंट एवं रैन सैल्टर का निर्माण।
- कार्तिक स्वामी मन्दिर समिति की धर्मशाला का जीर्णोद्धार एवं शौचालय की व्यवस्था।
- कार्ति स्वामी में पेयजल की व्यवस्था।
- कार्तिक स्वामी मन्दिर परिसर एवं रास्ते में सोलर लाइट की स्थापना।

जिला पर्यटन विकास अधिकारी, द्वारा अवगत कराया गया कि कार्तिक स्वामी में 04 सोलर लाइट जिला योजना 2013–14 में प्रस्तावित है, किन्तु शासन से अनुमोदित धनराशि के सापेक्ष

धनराशि अवमुक्त न होने के कारण वर्ष 2014--15 में मन्दिर परिसर में 04 सोलर लाइट स्थापित की जायेगी।

उप प्रभागीय वनाधिकारी, रूद्रप्रयाग द्वारा अवगत कराया गया कि कार्तिक स्वामी वन क्षेत्रान्तर्गत है, जिस कारण कार्तिक स्वामी क्षेत्र में पक्का निर्माण नहीं किया जा सकता है तथा कार्तिक स्वामी को विकसित करने हेतु किसी अन्य कार्यदाई संस्था से भी कार्य नहीं किया जा सकता है, कार्तिक स्वामी में वन अधिनियम के अन्तर्गत ही इक्को फ्रैण्डली निर्माण वन विभाग द्वारा किया जा सकता है।

(कार्य0 –प्रोजेक्ट मैनेजमेन्ट यूनिट डी0एस0सी, वन प्रभाग रूद्रप्रयाग, जिला पर्यटन विकास अधिकारी, रूद्रप्रयाग)

2– चोपता–तुंगनाथ का पर्यटन विकास – चोपता–तुंगनाथ को विकसित किये जाने हेतु निम्न कार्य किये जा सकते हैं –

- तुंगनाथ में भी चोपता से तुंगनाथ तक निर्मित खण्डिंजा मार्ग का जगह–जगह पर निर्माण व रैलिंग का निर्माण।
- रास्ते व मन्दिर परिसर में सोलर लाइट की स्थापना।
- व्यू–प्वाइंट एवं रैन सैल्टर का निर्माण।
- पैदल मार्ग पर बैंचेज की स्थापना।
- श्री तुंगनाथ मन्दिर में स्थित श्री बद्री–केदार मन्दिर समिति की धर्मशाला का जीर्णोद्धार।
- शौचालय की स्थापना।
- दुगलबिट्टा में पी0डब्ल्यू0डी0 का गेस्ट हाउस का पुर्नद्धार।

श्री रवीन्द्र निसला, वन क्षेत्राधिकारी, गुप्तकाशी (वन्य जीव प्रभाग गोपेश्वर–चमोली) द्वारा अवगत कराया गया कि चोपता श्री तुंगनाथ क्षेत्र वन्य जीव प्रभाग गोपेश्वर–चमोली के अन्तर्गत है, जिसमें पक्का निर्माण न कर इक्को फ्रैण्डली निर्माण कार्य किया जा सकता है व सेन्च्युरी क्षेत्र के अन्तर्गत होने के कारण भारत सरकार वन मंत्रालय की अनुमति ली जानी आवश्यक है।

जिला पर्यटन अधिकारी द्वारा अवगत कराया गया कि पूर्व में भारत सरकार ग्रामीण पर्यटन योजना के अन्तर्गत वर्ष 2004–05 में रू0 45.00 लाख की धनराशि प्रदान की गयी थी, जो उप वन संरक्षक वन्य जीव प्रभाग गोपेश्वर–चमोली को उपलब्ध कराई गयी थी जिसमें वन विभाग द्वारा सारी एवं देवरियाताल में इन्टरप्रटेशन सेन्टर व रिसेप्शन सेन्टर का निर्माण भी किया गया है। जिलाधिकारी महोदय द्वारा डी0एस0सी0 टीम को सुझाव दिये गये कि सेन्च्युरी क्षेत्र में किये जाने वाले कार्यों में कार्यदाई संस्था उप वन संरक्षक वन्य जीव प्रभाग गोपेश्वर–चमोली से प्रस्ताव एवं आंगणन प्राप्त कर कार्यवाही की जाय।

(कार्य0 पी0एम0यू0, डी0एस0सी0, उप वन संरक्षक वन्य जीव प्रभाग गोपेश्वर–चमोली, जिला पर्यटन विकास अधिकारी, रूद्रप्रयाग)

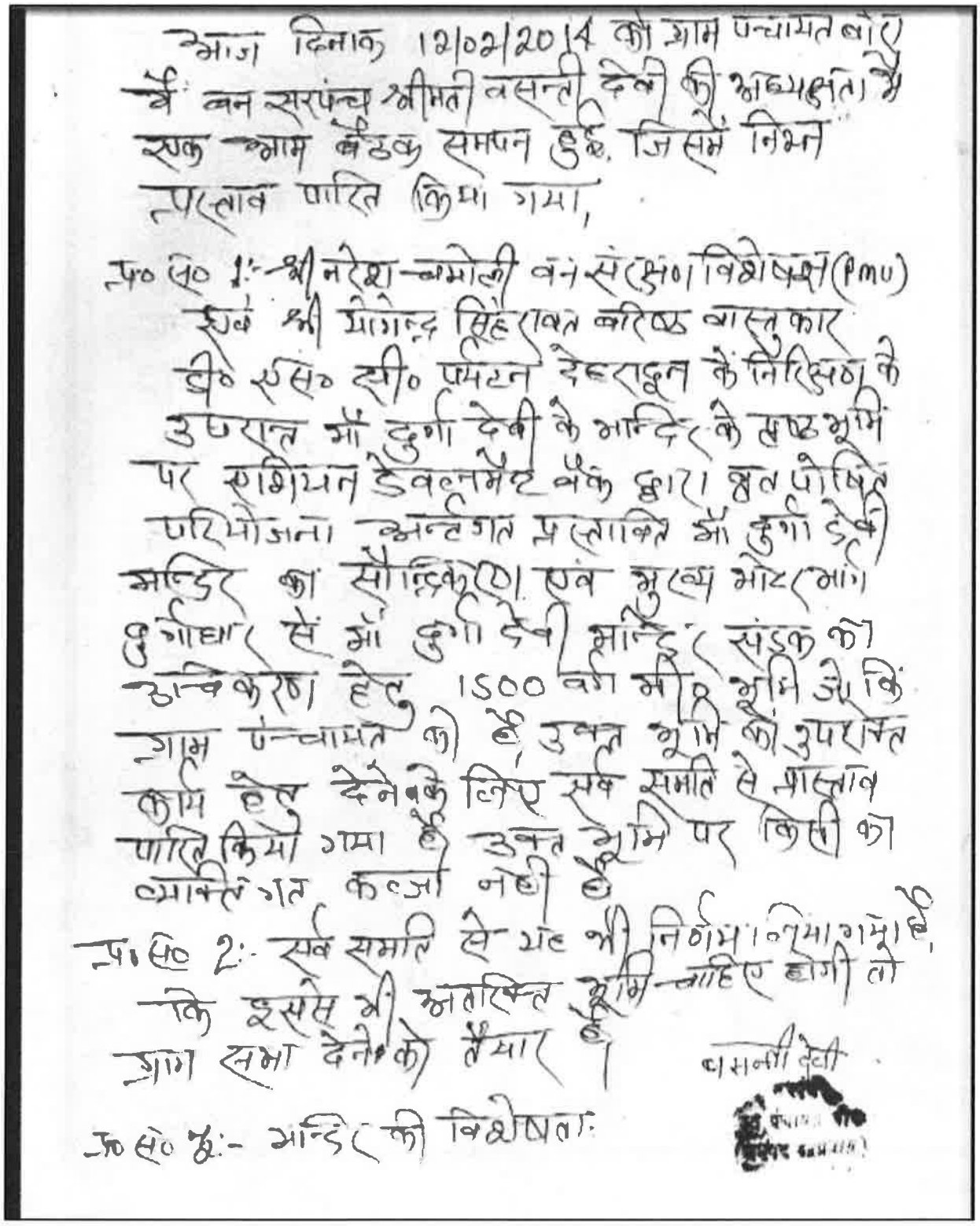
3– ग्रामीण पर्यटन का विकास – ग्रामीण पर्यटन को विकसित किये जाने के सम्बन्ध में इन्चार्ज डी0एस0सी0 द्वारा अवगत कराया गया कि प्रथम चरण में 10 ग्रामों को विकसित किया जाना है। कार्तिक स्वामी व कालीमठ क्षेत्रान्तर्गत आने वाले ग्रामों का उनके द्वारा सर्वेक्षण किया जा चुका है व जिसमें कालीमठ, फाटा, कविल्ठा, ऊखीमठ, फलासी धिमतोली कनकचौरी का निरीक्षण किये गये।

जनप्रतिनिधि श्री सूरज नेगी द्वारा अवगत कराया गया कि रूद्रप्रयाग से कार्तिक स्वामी मार्ग पर ग्राम चोपता पड़ता है, जिसे ग्रामीण पर्यटन के रूप में विकसित किया जा सकता है व चोपता से पैदल 500 मीटर फलासी गाँव में तुंगनाथ जी का प्राचीन मन्दिर है, जिसको शंकराचार्य जी ने जीर्णोद्धार किया था का भी सौन्दर्यीकरण करवाया जाय। जिससे वहाँ देशी पर्यटकों के साथ–साथ विदेशी पर्यटक भी आय। चोपता,स्यारी–ग्वांस मोटर मार्ग पर व्यू प्वाइन्ट का निर्माण व ग्वांस से कार्तिक स्वामी तक 3.5 किमी0 ट्रैक रूट का निर्माण किया जाय।

Transcript:

Meeting was held under the chairmanship of Dist. Collector, Rudraprayag on 22 February 2014 for the proposed works at Kartikeya Swami, Durgadhar and Tungeshwar temple and its vicinity under ADB assisted IDIPT program. All the stakeholders including representatives of Forest Dept., Temple Trust, Panchayat Samiti, NGO and Tourism dept. were present in the meeting. The DM requested all to provide necessary support to EA for implementation of the sub-project. It was decided to take up more villages such as Patha, Kalimath, Kaviltha, Chopta, Ghimtoli under Rural Tourism to reap maximum benefits of the investment programme

Annexure 3: Letter of Village Panchayat for providing land for infrastructure works at Durgadhar Temple



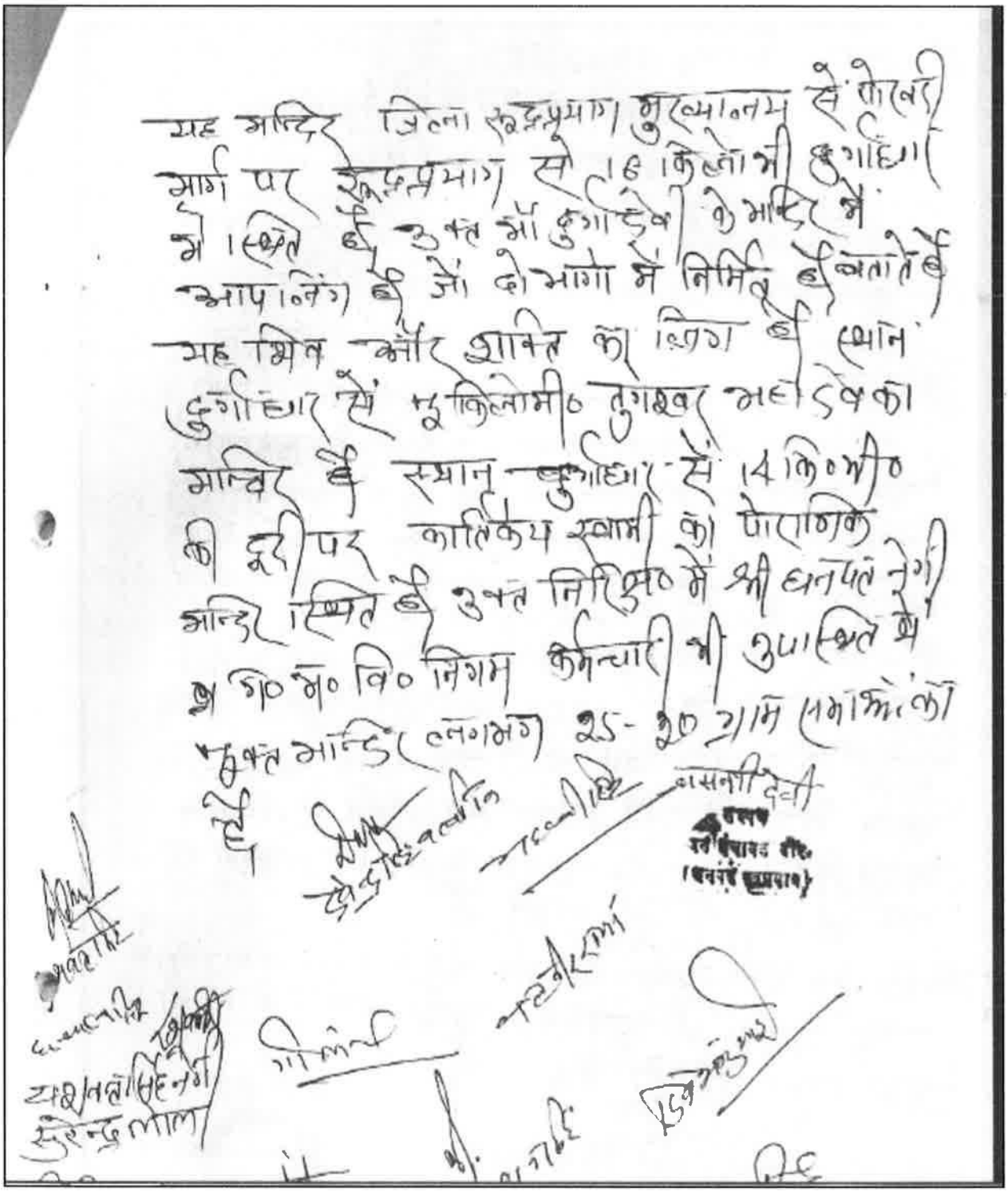
आज दिनांक 12/02/2014 को ग्राम पंचायत बोए में वन सरपंच श्रीमती वसन्ती देवी की अध्यक्षता में एक ग्राम बैठक सम्पन्न हुई, जिसमें निम्न प्रस्ताव पारित किया गया,

प्र० सं० 1:- श्री नरेश चमोली वन संरक्षक विशेषज्ञ (PMU) एवं श्री प्रयागेन्द्र सिंह रावत वरिष्ठ वास्तुकार टी० एस० डी० पर्यटन देहरादून के निरीक्षण के उपरान्त माँ दुर्गा देवी के मन्दिर के सुदृढ़ीकरण पर एशियन डेवलपमेंट बैंक द्वारा वृत पोषित परियोजना अन्तर्गत प्रस्तावित माँ दुर्गा देवी मन्दिर का सौन्दर्यीकरण एवं मुख्य मोटर मार्ग दुर्गाधार से माँ दुर्गा देवी मन्दिर संडक को चौड़ीकरण हेतु 1500 वर्ग मी० भूमि जो कि ग्राम पंचायत की है, उक्त भूमि को उपरोक्त कार्य हेतु देने के लिए सर्व सम्मति से प्रस्ताव पारित किया गया है उक्त भूमि पर किसी का व्यक्तिगत कब्जा नहीं है

प्र० सं० 2:- सर्व सम्मति से यह भी निर्णय लिया गया है, कि इससे भी अतिरिक्त भूमि चाहिए होगी तो ग्राम सभा देने को तैयार है।

वासन्ती देवी

प्र० सं० 3:- मन्दिर की विशेषता:



Transcript

Meeting was held with Sarpanch Vill. – Baura, where it was suggested to improve the road from Durgadhar to Maa Durga Temple. Village panchayat agreed to provide land for such development.

Annexure 4: Letter of Temple Trust and Village Panchayat for providing land for infrastructure development works at Tungeshwar Temple.

सेवा में, श्रीमान परियोजना प्रबन्धक महोदय

परियोजना प्रबन्धक इकाई आई. यू. डी.

विषय :— श्री तुंगेश्वर मंदिर फलासी के अन्तर्गत पर्यटन से सम्बन्धित सुदृढ़ीकरण एवं सौन्दर्यीकरण के सम्बन्ध में

महोदय, निवेदन है कि श्री तुंगेश्वर मंदिर फलासी (तिलवाड़ा)

महोदय) श्री शंकराचार्य जी द्वारा निर्मित (स्थापित) है, यह मंदिर कत्यूरी वास्तुकला द्वारा निर्मित है, इसमें शिवशक्ति मूर्ति स्थापित है, यहां पर भगवान शिव का स्वयं लिंग स्थापित है, लक्ष्मीनारायण भगवान की मूर्ति भी यहां स्थापित है, यह मंदिर भूगर्भ पुरातत्व विभाग के अन्तर्गत नहीं आता है. मंदिर रुद्रप्रयाग से कार्तिकस्वामी मंदिर के बीच रास्ते में पड़ता है, जिसकी दूरी रुद्रप्रयाग से 20 बीस की०मी० चोपता पड़ता है तथा 1 एक की० मी० पैदल मार्ग मंदिर फलासी तक है, तथा फलासी से कार्तिकस्वामी मंदिर को भी पैदल मार्ग ग्राम [illegible] से होकर [illegible] बीच लगभग 5 पांच की० मी० है यह मंदिर पंचकेदारों के अन्तर्गत भी आता है,

चोपता से कनकचौरी मोटर मार्ग की दूरी 12 बारह की० मी० है। तथा कनकचौरी से कार्तिकस्वामी 3 तीन की० मी० पैदल मार्ग है।

मंदिर के सौन्दर्यीकरण एवं जीर्णोद्धार के सम्बन्ध में श्री तुंगेश्वर मंदिर समिति एवं ग्राम समिति भूमि की आवश्यकता पड़ने पर भूमि उपलब्ध करवा सकती है,

मंदिर के सौन्दर्यीकरण एवं सुदृढ़ीकरण के कार्यवाही प्रतिक्षालय निर्माण, धर्मशालायें, यात्री विश्राम गृह, शौचालय, सोलर प्रकाश व्यवस्था, तथा मंदिर का सौन्दर्यीकरण आदि, करवाने की कृपा करें,

17195282
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भवदीय

15.2.14

सचिव 15.2.14 कोषाध्यक्ष अध्यक्ष श्री तुंगेश्वर मंदिर समिति

[illegible]

प्रस्ताव

आज दि॰ 03-08-2014 को सर्वसम्मति से निर्णय लिया गया कि श्री तुंगेश्वर महादेव मन्दिर परिसर फलासी में पर्यटन विभाग द्वारा सुदृढ़ीकरण एवं सौन्दर्यीकरण का जो भी निर्माण कार्य किया जायेगा उसका रख-रखाव की जिम्मेदारी श्री तुंगेश्वर मन्दिर ट्रस्टी फलासी ने लेती है।

3.8.14

अध्यक्ष
श्री तुंगेश्वर मंदिर ट्रस्टी
फलासी

57

Transcript

An assurance letter from Tungeshwar Temple Trust and Village Panchayat to Project Director, IDIPT for providing suitable land for development of infrastructure facilities at Tungeshwar temple and its vicinity for construction of Rest house, Toilets blocks, Sitting arrangement, Rain shelters from Rest house to Temple, Parking and beautification of temple etc.

Annexure-5 Environmental Selection Criteria (as per EARF table 5)

Component	Criteria	Remarks
Overall selection criteria	**1.** Will be fully consistent with management plans or master plans for the area	No specific Management plan for the area. But, Tungnath and Durgadhari has tremendous potential to become a national hub for eco-tourism. Tourism Development master plan also suggests development and promotion of tourism around Kartikeya swami Temple circuit. • Enhanced livelihood opportunities with increase in tourist flow once basic infrastructure and services improved. • Enhanced opportunities for small restaurants/dhaba's owners, Hotel/lodges, local guides, local produce etc. • Villagers will be engaged in the maintenance work of the structures at Durgadhar & Tugeshwar temple. • Income of the Mandir Samiti (Temple Committee) will increase due to increase in stay of increased tourist after added facilities due to the subproject.
	2. Will avoid resettlement/relocation. If unavoidable the extent of resettlement will be minimized.	Only temporary livelihood loss is anticipated, which shall be tried to be minimized and if unavoidable, shall be adequately compensated. (RP has been prepared)
	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.	Not envisaged Tungeswar and Durgadhari temple land belongs to Temple Trust and Mandir Samiti
	4. Will be in line with the Conservation Plan/management plan for the conservation and management of the Protected areas	*NA*
	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	No protected area If needed, the sub project will promote tourism related activities in protected areas only, subject to clearance from forest department

Component	Criteria	Remarks
	Management Plan	
	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	No Archaeological Survey of India (ASI) notified archaeological monument or heritage site nearby.
	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	No ASI notified monument/heritage site exists in the vicinity.
	8. Will reflect inputs from public consultation and disclosure for site selection	Meaningful public consultations have been done from planning phase and inputs have been considered in the project design
	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	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. Landscaping plan includes only native species.
	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	Provisions for O&M has been made in the DPR and responsibility entrusted to the Temple Committee/ Gram Panchayat to ensure environment management sustainability.

Component	Criteria	Remarks
	12. Will reflect inputs from public consultation and disclosure for site selection	Inputs from major stakeholders like District Authorities, stakeholders like Temple Committee/ Gram Panchayat and local population 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.	Historic condition shall not be altered, rather temple restoration works are in line with the architectural character of the temples.
	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.	NA as the sub project works are not close to any protected monuments/structures. Designs are in sync with the architectural character of the temple
	16. Will ensure that physical remains are conserved in their historic condition without loss of evidence. Respect for the significance of the physical emails must guide any restoration. Technical interventions should not compromise subsequent treatment of the original fabric. The results of intervention should be unobtrusive when compared to the original fabric or to previous treatments, but still should be distinguishable	Not applicable because the site is not close to any ASI Protected monument/ remains site.
	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	

Component	Criteria	Remarks
	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.	Project designs are based on guidelines conforming to Uttarakhand architecture. The construction and operation of temple campus will not have any impact traditional technology and craftsmanship.
	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	*NA*
	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	*NA*
	21. Will ensure that treatment of the cultural heritage site and its environs is a comprehensive measure to prevent damage form 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 form 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.	*NA,* as the site is not a cultural heritage site Proposed subproject entails construction of temple infrastructure, which has been designed in heritage style with facilities for basic amenities
Conservation and habitat protection measures- in and around the natural	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	Tungeshwar and Durgadhari temple land belongs to Temple Trust and Mandir Samiti.

Component	Criteria	Remarks
heritage assets and protected areas.	further deterioration, using both technical and management measures.	
	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 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.	Site is not in core or buffer zone of any protected area. (Proposed sub project interventions shall provide facilities. The temple and surroundings are not part of protected area and the temple also does not fall within the buffer zone of protected area). Tungeshwar and Durgadhari temple land belongs to Temple Trust and Mandir Samiti
	25. Will ensure that the areas of significant habitat diversity habitats are conserved in their natural condition.	*NA*
	26. The results of intervention should be unobtrusive when compared to the original fabric or to previous treatments, but still should be distinguishable	It is tried to retain the architectural character of the temple through proposed interventions.
	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.	No new materials and techniques are proposed to be used.
	28. Service buildings should be as far as possible from the principal area of the site.	*NA*
Water supply	29. Will be taken up from existing potable treatment systems nearby, unless no such systems are available in the vicinity.	NA.
	30. Will not result in excessive abstraction of ground water or result in excessive groundwater pumping impairing ground water quality	Not envisaged as water requirements are to be met from existing water supply system.

Component	Criteria	Remarks
	31. Will ensure adequate protection from pollution of intake points	Not Applicable, as no new intake point or water supply infrastructure is to be created as part of this sub project.
	32. Will not result in unsatisfactory raw water supply (e.g. supply with excessive pathogens or mineral constituents)	The sub project activities during construction and operation phase will not result into unsatisfactory raw water supply as waste water from Adventure Tourist Centre will not be going to raw water supply source. Further, in house, water treatment measures will be observed prior to supply of potable water in the Centre.
	33. Will ensure proper and adequate treatment and disposal facilitates for increased volumes of wastewater generation	Not much waste water generation envisaged. Septic tanks/sock pits of sufficient capacity are proposed
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	NA
	35. Will ensure that sanitation improvements proposed do not result in pollution of groundwater.	Environmental Management and Monitoring Plan (EMMP) has been prepared and this will ensure no impact on ground water quality.
	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.	Will be ensured and since it is a tourism project, no such nuisance envisaged during the construction and operation phases of the sub project.
	37. Will not impair downstream water quality due to inadequate sewage treatment or release of untreated sewage,	Not envisaged as septic tank/sock pits of adequate capacity have been designed.
	38. Will not cause overflows and flooding of surroundings, especially around the heritage sites with raw sewage.	Proposed septic tanks/ sock pits are of adequate capacity, overflow and flooding not anticipated. The septic tank will be emptied every quarter through a vacuum sludge truck. The responsibility of septic tank cleaning lies with the Tourism Department. If the temple trust is to be managed through an Operator then Dept. will ensure that the septic tanks are cleaned every quarter. For the septic tank cleaning arrangement will be made with the

Component	Criteria	Remarks
		local municipal authorities at the site. The sludge from the vacuum truck will be disposed off at the location identified by the PIU in consultation with local municipal authorities.
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	There is provision of waste segregation at source through separate Bio-degradable and Non- Biodegradable Waste bins and suitable disposal arrangements. Both types of solid wastes will be disposed off in consultations with local civic authorities.
	40. Will ensure buffer of greenbelt and earth works around the site to avoid nuisance to neighboring areas due to foul odor and influx of insects, rodents, etc.	During construction phase suitable buffer will be provided as per EMMP. Project also has provisions for landscaping and maintenance of rich green belt with native species in the vacant space of temple
	41. Will ensure that for composting pits for protected areas, the locations are devoid of any wildlife population, especially wild boars, porcupines	*NA*
	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	Site is devoid of any vegetation hence clearing of vegetation not envisaged. The roads circulation plan planned to be integrated with the local road network.
	44. Will ensure on dislocation and involuntary resettlement of people living in right of way.	No dislocation and involuntary resettlement envisaged. The sub project site is adjacent to the existing road.
	45. Will not lead to alteration of surface water hydrology of streams/waterways that may result in increased sediment load due to erosion form construction sites.	Erosion from construction sites will be controlled as per EMMP provisions. Road construction within the subproject complex will not have any impact on the surface water hydrology of the project region.
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

Component	Criteria	Remarks
	47. Will ensure adequacy of outfall of proposed drainage works, to avoid any impacts associated with flooding in downstream areas, or areas not covered	NA
	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	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	Any new growth or expansion will be within the regulations of Uttrakhand Tourism Development Board and local Civic authorities. The parking facilities for the sub project have been planned within the temple complex Hence there will be no impact on existing traffic on account of operation of subproject. The tourist centre will have a well planned solid waste collection and disposal system.
	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.	Not envisaged. Project shall add to the aesthetic beauty of the site and enhance the visitor experience.

Annexure 6: Sample Traffic Management Plan (TMP)

A. Principles

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

   (i) the safety of pedestrians, bicyclists, and motorists travelling through the construction zone;

   (ii) protection of work crews from hazards associated with moving traffic;

   (iii) mitigation of the adverse impact on road capacity and delays to the road users;

   (iv) maintenance of access to adjoining properties

   (v) Avoid hazards in

   (vi) addressing issues that may delay the project.

B. Operating Policies for TMP

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

   (i) Make traffic safety and temporary traffic control an integral and high-priority element of every project from planning through design, construction, and maintenance.

   (ii) Inhibit traffic movement as little as possible.

   (iii) Provide clear and positive guidance to drivers, bicyclists, and pedestrians as they approach and travel through the temporary traffic control zone.

   (iv) Inspect traffic control elements routinely, both day and night, and make modifications when necessary.

   (v) Pay increased attention to roadside safety in the vicinity of temporary traffic control zones.

   (vi) Train all persons that select, place, and maintain temporary traffic control devices.

   (vii) Keep the public well informed.

   (viii) Make appropriate accommodation for abutting property owners, residents, businesses, emergency services, railroads, commercial vehicles, and transit operations.

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

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

   (i) approval from the PIU, local administration to use the local streets as detours;

   (ii) consultation with businesses, community members, traffic police, PWD, etc, regarding the mitigation measures necessary at the detours where the road is diverted during the construction;

(iii) determining of the maximum number of days allowed for road closure, and incorporation of such provisions into the contract documents;

(iv) determining if additional traffic control or temporary improvements are needed along the detour route;

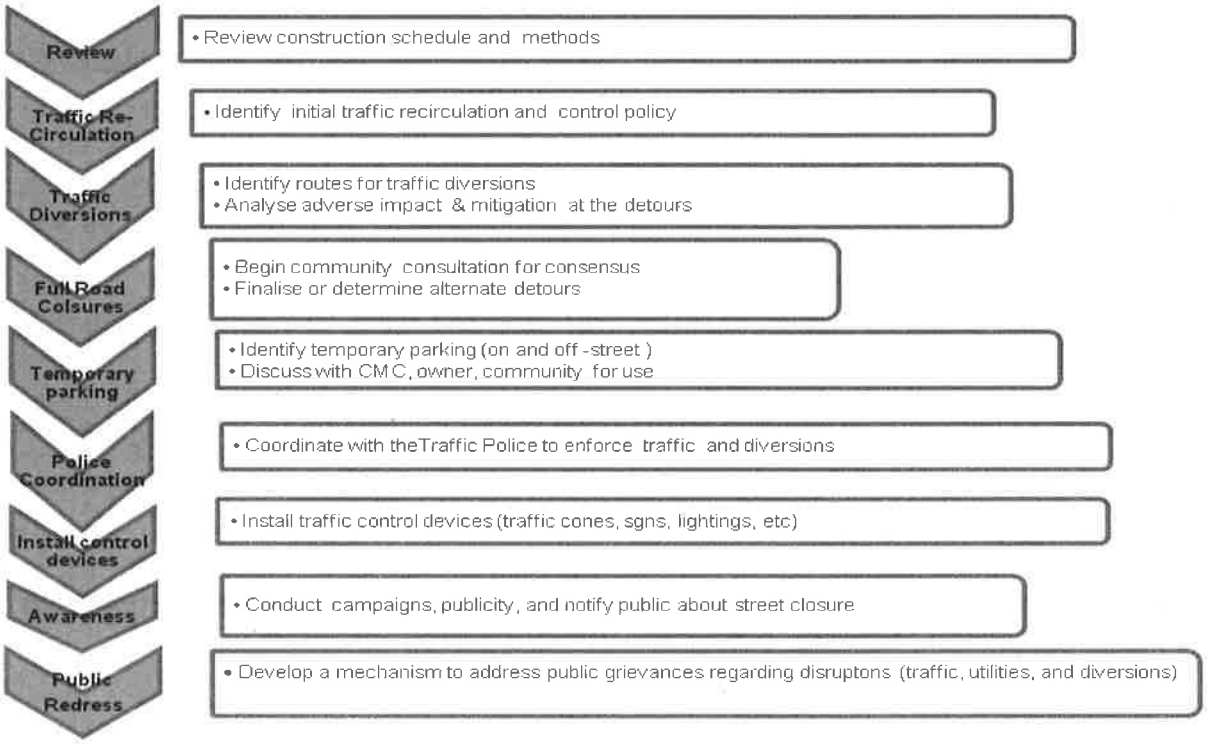
(v) considering how access will be provided to the worksite;

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

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

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

Figure A1: Policy Steps for the TMP



D. Public awareness and notifications

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

6. The awareness campaign and the prior notification for the public will be a continuous activity which the project will carry out to compensate for the above delays and minimize public claims as result of these problems. These activities will take place sufficiently in advance of the time when the roadblocks or traffic diversions take place at the particular streets. The reason for this is to allow sufficient time for the public and residents to understand the changes to their travel plans. The project will notify the public about the roadblocks and traffic diversion through public notices ward level meetings and city level meeting with the elected representatives.

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

(i) Traffic control devices in place at the work zones (signs, traffic cones, barriers, etc.);

(ii) defensive driving behaviour along the work zones; and

(iii) Reduced speeds enforced at the work zones and traffic diversions.

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

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

(i) explain why the brochure was prepared, along with a brief description of the project;

(ii) advise the public to expect the unexpected;

(iii) educate the public about the various traffic control devices and safety measures adopted at the work zones;

(iv) educate the public about the safe road user behaviour to emulate at the work zones;

(v) tell the public how to stay informed or where to inquire about road safety issues at the work zones (name, telephone, mobile number of the contact person; and

(vi) Indicate the office hours of relevant offices.

E. Vehicle Maintenance and Safety

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

- Driver will follow the special code of conduct and road safety rules of Government of Nepal.
- Drivers to ensure that all loads are covered and secured drivers to ensure operation equipment can't leak materials hauled

- Vehicles will be cleaned and maintained in designed places.

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

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

- Signs
- Pavement Markings
- Channelizing Devices
- Arrow Panels
- Warning Lights

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

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

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

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

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