



# Initial Environmental Examination

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Project Number: 40648-034  
March 2017

## IND: Infrastructure Development Investment Program for Tourism - Tranche 3

Subproject : Development of Rural Tourism in Pauri and Tehri District of Uttarakhand

Submitted by:

Program Management Unit, Government of Uttarakhand, Dehrdaun

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**Asian Development Bank**



Govt. of Uttarakhand

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 (ADB Assisted Loan No. 2833, India)  
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Ref: 4957/2-10-ADB IDIPT/249/2014-15

Date: 24.03.2017

To

Country Director,  
 Indian Resident Mission (INRM),  
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 New Delhi 110021, PB No-53311 (HPO)



**Sub: Loan No. 3223 IND- IDIPT, Submission of Revised IEE document for "Development of Rural Tourism of Pauri and Tehri District of Uttarakhand"**

Respected Madam,

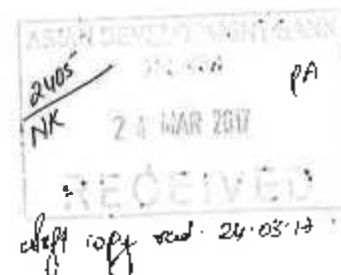
Kindly refer to the IEE document of "Development of Rural Tourism of Pauri and Tehri District of Uttarakhand" (UK/IDIPT/III/KOT/03) submitted vide PMU's mail dt. 25.02.17 and ADB's observations on the same communicated vide mail dt. 01.03.17.

Please find the revised IEE document and comments response matrix for your kind perusal and approval.

Encl.: As above

Yours Sincerely

(R.K. Joshi)  
 Additional Program Director



**Comments Compliance Matrix for Development of Rural tourism in Pauri and Tehri districts of Uttarakhand (Package No. UK/IDIPT/III/KOT/03)**

<b>Comment No.</b>	<b>Comment</b>	<b>Compliance in Revised IEE</b>
1	We note from para 9 (page 10) that water in artificial lake at Kanvashram shall be taken from small canal flowing close to the project site. We further note that 2 bore wells have also been proposed for withdrawal of water in case of non-availability of water in small canal. Please incorporate the required permissions for use of canal and ground water in environmental regulatory compliance of table 2 (page 17);	<p>The NOC from Irrigation Department of Government of Uttarakhand is under process. Letter attached Annexure 3A. The water requirement shall be during the operation phase and the approval is expected to be available before the operation phase.</p> <p>For 2 bore wells NOC requirement is not there as per details provided in the document titled 'Guidelines/Criteria for evaluation of proposals/requests for ground water abstraction (dated 16 -11-2015)', of Central Ground Water Authority of Government of India. According to these guidelines areas all over the country have been identified as 'Notified' and ' Non Notified'. In Notified areas no ground water extraction is allowed except for drinking and in Non Notified Areas permission is granted by the district collector. Basically Notified areas are those which are critically, semi critically, saline or over exploited.</p> <p>The non notified areas are those which are regulated and permission is given by the district administration head (District collector/Commissioner/ District Magistrate). In case of Kanvashram site, the area does not fall in any of the category. So ground water regulation is not warranted, hence no permission is needed from district administration for two bore wells proposed.</p>
2	Please provide the methodology of artificial lake construction Kanvashram along with associated environmental impacts and proposed mitigation measures during construction and operation stage;	The construction methodology, impacts and mitigations during construction and operation phases have been provided in para 107 to 124 and tables 20 and 21 in the revised IEE document.
3	We note from table 26 (page 129) that the environmental monitoring during pre-construction has been considered, whereas the environmental budget (table 28,	Primary baseline data has been generated during this IEE report preparation in respect of ambient air quality, ground and surface water quality and noise levels at all the ten locations of sub-project sites. Due to this pre

Comment No.	Comment	Compliance in Revised IEE
	page 133) has been prepared only during construction stage. Kindly address this in the environmental budget.	construction monitoring need is not felt. Necessary corrections in environmental monitoring plan and budget have been done in the revised IEE document. Further, the operational phase monitoring budget has been restricted to once in the initial year, considering the low impact and magnitude of works in the rural tourism project.
4	We note that a checklist for preliminary climate risk screening (page 113) has been given in the report for sub-project under the Loan-2833-IND. Please make the suitable correction by replacing with Loan-3223-IND. Kindly check and correct the scores given in the checklist to be consistent with the initial screening reported as “high” risk category.	The Loan number has been corrected in climate screening and scores have also been consistent with 'High' Risk category.

# **Environmental Assessment Document**

**Initial Environmental Examination (IEE)**

**Loan Number: 3223 IND**

**Package No: UK/IDIPT/III/KOT/03**

**Revised March 2017**

**Infrastructure Development Investment Program for Tourism in  
Uttarakhand**

**Sub Project – Development of Rural Tourism in Pauri and Tehri District of  
Uttarakhand**

**TRANCHE III**

Prepared by the Government of Uttarakhand for the Asian Development Bank

This initial environmental examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

## **ABBREVIATIONS**

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

## **CURRENCY EQUIVALENTS**

(As of October 2016)

Currency unit – Indian rupee (Rs)

Rs1.00 = \$0.015152

\$1.00 = Rs 66.000

## **WEIGHTS AND MEASURES**

dB (A) A-weighted decibel

ha - hectare

km - kilometer

km<sup>2</sup> - square kilometer

µg - microgram

m - meter

m<sup>2</sup> - 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.

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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. The Development of Rural Tourism in Uttarakhand has been taken as part of Tranche-3 sub-projects.
2. **Executing and Implementing Agencies -** The Tourism Department of the Government of Uttarakhand is the Executing Agency (EA); and the Project Management Unit (PMU) of the Uttarakhand Tourism Development Board (UTDB) is the implementing agency (IA).
3. **Categorization-** The sub-project "**Development of Rural Tourism in Pauri and Tehri District of Uttarakhand**" is classified as Environmental Category B as per the ADB SPS 2009 as no significant impacts are envisioned. Accordingly Initial Environmental Examination (IEE) has been prepared for the sub-project. The IEE is based on a careful review of sub-project 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 sub-project has been prepared. The sub-project will conform to all Government regulations, policies and standards, as well as Asian Development Bank's Safeguard Policy Statement (2009).
4. **Sub-project Scope-** The sub-project is for development of rural tourism in 13 selected villages in Uttarakhand state. The sub-project will also contribute towards preserving ecological and cultural integrity at all 13 locations. Out of thirteen locations, 7 villages are in Tehri Garhwal district and 6 villages are in Pauri Garhwal district. Out of these 13 villages physical infrastructure is planned only in 10 villages. In 3 villages only software components are planned. The elevation of the locations varies from 436-2050 m above MSL. All the project related infrastructure will be provided on the unencumbered land belonging to Government of Uttarakhand. There have been discussions with village Panchayats and their consent has been obtained. There are no impacts envisaged on land acquisition or resettlement due to the proposed sub-project components.
5. **Description of Environment-** There is no protected areas (PAs), wetlands, mangroves, or estuaries within or near the sites selected for Rural Tourism sites. All the

facilities are planned within the villages except Kanvashram site which is away from habitation an open area. The Kanvashram site had 'Reserved Forest' land use, but land transfer to Tourism Department has been completed after obtaining clearance from Forest Department under the provisions of 'The Forest (Conservation) Act', 1980. The Government of Uttarakhand has also given permission for project activities. The Kanvashram site is mostly devoid of trees and involves cutting of 36 trees only. These trees have been enumerated. All the sub-project sites are away from Protected Areas located in the State of Uttarakhand. Trees, vegetation and animals in the sub-project sites are those commonly found in rural areas of Uttarakhand. No rare, threatened, endangered or endemic flora or fauna are observed in the surroundings of rural tourism sites.

6. **Environmental Impacts and Environmental Management** -There are no heritage sites listed by Archaeological Survey of India (ASI) or State Archaeological Department within the sub-project areas 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 creation of tourism infrastructure.

7. The environmental impacts of the sub-project are not significant and sub-project 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 sub-project. A detailed monitoring plan prepared as part of this IEE will further mitigate negative environmental impacts during implementation.

8. Potential negative impacts were identified in relation to construction and operation of the improved infrastructure. No impacts were identified as being due to the sub-project design or location. EMP, proposed as part of this IEE includes (i) mitigation measures for adverse environmental impacts during (i) Pre construction, (ii) Construction and (iii) Operation and Maintenance phase of the project. An Environmental Management Plan (EMP) and environmental monitoring program has been prepared for pre-construction, construction and operation and maintenance phase of the sub-project. The EMP specifies roles, and the responsible entities for mitigation, monitoring, and reporting. The stakeholder consultations have been taken up to invite views, comments and suggestions of all stakeholders. The suggestions of stakeholders have been incorporated in the sub-project design. Mitigation measures have been developed to reduce all negative impacts to acceptable levels.

9. Majority of the significant impacts will occur during the construction phase and are generic to the construction activities. Key impacts during construction phase are envisaged

on the following aspects: (i) drainage, (ii) ground and surface water quality, (iii) dust generation, air and noise pollution from construction activities, (iv) handling of construction materials at sites, (v) disposal of construction waste materials, and (vi) adoption of safety measures during construction. These are common impacts of construction near built-up areas, and there are well developed methods for their mitigation. The sub-project is relatively small in scale and involves straight forward construction of amenities, pathway development, creation of artificial lake(at Kanvashram) solar lighting, bins for solid waste collection, drinking water facilities, etc. therefore, it is unlikely that there will be major impacts. Ground water will not be used for construction purposes, and water is proposed to be obtained from local water supply and the problem of ground water contamination is not anticipated during the construction phase as there will be proper disposal of waste water through provisions of septic tanks and soak pits at construction camps. In order to augment water in artificial lake, at Kanvashram sub-project site, in the operation phase, water will be drawn from small canal flowing close to the sub-project site. For this permission will be obtained from Uttarakhand Irrigation Department. Only on non availability of water in this small canal, the water will be withdrawn from the 2 bore wells to be constructed as part of sub-project. The Kanvashram site does not fall in water extraction regulated zone, so permission from district administration is not needed for bore wells as per details provided in the document titled as ' Guidelines/Criteria for evaluation of proposals/requests for ground water abstraction (dated 16 -11-2015)'. There will also be water requirement for maintenance of plantation and landscape areas at Kanvashram site. The total requirement for water will not exceed 150-200 m<sup>3</sup>/day in the operation phase. At other sub-project sites, in the operation phase, water requirement will be for the maintenance of sanitation facilities. For the maintenance of sanitation facilities at these sites, ground water is not planned to be used. For the maintenance of these facilities water will be used from local supply.

10. Few impacts both positive and negative are anticipated during operation phase of the sub-project. The positive impacts would help improvement of the economic conditions of locals, however for negative impacts, well-developed mitigation measures would be put in place. The safety of the tourists would be ensured and well developed safety measures and norms would be applied & practiced to minimize any risks.

11. Possible measures to reduce the amount of waste are: the use of environmental friendly and biodegradable products, collection of waste and use of waste for compost.

12. The implementation of the sub-project will not involve dislocation or involuntary resettlement of people as the proposed sites for the sub-project are free from any encumbrances. There is no encroachment or any squatter settlement at locations identified

for creation of infrastructure facilities. Hence, there is no resettlement issues related to the sites. In fact, employment and business opportunities created as a result of the added tourist attractions in the rural areas of Tehri Garhwal and Pauri Garhwal, will contribute towards socio-economic growth of the local people.

13. 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 phase. During operations of the improved infrastructure and services at the identified sites will not only increase the life quality of villagers as well as rural tourism will provide direct and indirect employment due to tourists stay and visits. This can be considered a long-term cumulative benefit of the sub-project as both the districts (Tehri Garhwal and Pauri Garhwal) of Uttarakhand are going to benefit from this sub-project.

14. The sub-project 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 Government of India EIA Notification (2006).

15. **Consultation, Disclosure and Grievance Redress**-Public consultations were done in the preparation of the project and IEE. On-going consultations will occur throughout the sub-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 quarterly monitoring reports to the PMU. The PMU will consolidate the quarterly reports and will send it to ADB. ADB will post the environmental monitoring reports on its website.

17. **Conclusions and Recommendations**-The proposed sub-project 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 sub-project as Category “B” is confirmed. No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS, 2009 or Government of India EIA Notification, 2006.

## I. INTRODUCTION

### 1. Background

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:** The sub-project sites are spread in two districts of Uttarakhand namely Tehri Garhwal and Pauri Garhwal. The locations of these sites from the prominent locations of the state are given below in **Table-1**.

**Table-1: Locations of Rural Tourism in Uttarakhand**

Sl. No.	Village Name	Altitude (m)	Distance from (km)
1.	Kanvashram (Pauri Garhwal)	490	Jolly Grant Airport : 125 Delhi : 223 Haridwar : 87 Dehradun : 140 Rishikesh : 103 Pauri : 120 Kotdwar : 14
2.	Kalalghati (Pauri Garhwal)	440	Jolly Grant Airport : 122 Delhi : 221 Haridwar : 84 Dehradun : 138 Rishikesh : 110 Pauri : 118 Kotdwar : 11
3.	Mavakot (Pauri Garhwal)	436	Jolly Grant Airport : 119 Delhi : 218 Haridwar : 83 Dehradun : 135 Rishikesh : 107 Pauri : 115 Kotdwar : 8
4.	Jaiharikhal (Pauri Garhwal)	1584	Jolly Grant Airport : 152 Delhi : 250 Haridwar : 114 Dehradun : 167 Rishikesh : 139 Pauri : 78

**Infrastructure Development Investment Program for Tourism, Uttarakhand (IDIPT: Tranche III)**  
**Initial Environmental Examination**  
**Development of Rural Tourism Infrastructure in Pauri and Tehri District**

Sl. No.	Village Name	Altitude (m)	Distance from (km)
			Kotdwar : 39
5.	Sendhi (Pauri Garhwal)	884	Jolly Grant Airport : 139 Delhi : 238 Haridwar : 101 Dehradun : 155 Rishikesh : 127 Pauri : 103 Kotdwar : 26
6.	Kuthar (Pauri Garhwal)	775	Jolly Grant Airport : 40 Delhi : 261 Haridwar : 45 Dehradun : 65 Rishikesh : 26 Neel Kanth Temple : 4 Laxman Jhula : 16
7.	Gajana (Tehri Garhwal)	1410	Jolly Grant Airport : 78 Delhi : 299 Haridwar : 87 Dehradun : 104 Rishikesh : 64 Mussoorie : 64 Chamba : 3 Tehri : 14
8.	Arakot (Tehri Garhwal)	1700	Jolly Grant Airport : 79 Delhi : 300 Haridwar : 87 Dehradun : 104 Rishikesh : 64 Mussoorie : 57 Chamba : 4 Tehri : 15
9.	Chokhala (Tehri Garhwal)	1900	Jolly Grant Airport : 81 Delhi : 302 Haridwar : 89 Dehradun : 107 Rishikesh : 67 Mussoorie : 57 Chamba : 6 Tehri : 17
10.	Chopariyal (Tehri Garhwal)	2050	Jolly Grant Airport : 83 Delhi : 304 Haridwar : 91 Dehradun : 109 Rishikesh : 69 Mussoorie : 54 Chamba : 8 Tehri : 9
11.	Tipri (Tehri Garhwal)	1232	Jolly Grant Airport : 110 Delhi : 332 Haridwar : 119 Dehradun : 136 Rishikesh : 96 Mussoorie : 98 Chamba : 35 Tehri : 30



Sl. No.	Village Name	Altitude (m)	Distance from (km)
			Srinagar Garhwal : 59
12.	Uthar (Tehri Garhwal)	904	Jolly Grant Airport : 112 Delhi : 333 Haridwar : 120 Dehradun : 138 Rishikesh : 98 Mussoorie : 100 Chamba : 37 Tehri : 32 Srinagar Garhwal : 53
13.	Mukhem (Tehri Garhwal)	1954	Jolly Grant Airport : 197 Delhi : 418 Haridwar : 205 Dehradun : 223 Rishikesh : 183 Chamba : 122 Tehri : 116 Pratap Nagar : 51 Uttarkashi : 60

20. The district of Tehri Garhwal is one of the largest districts and the western most districts of Uttarakhand. River Bhagirathi which runs through appears to divide the Tehri district into two, while the Bhilangna, Alaknanda, Ganga and Yamuna rivers border it on the east and west. Tehri's neighboring districts are Uttarkashi, Chamoli, Pauri, Rudraprayag and Dehradun. The district lies between the parallels of 30.3' and 30.53' north latitude and 77.56' and 79.04' east longitude. Uttarkashi from the north, Rudraprayag from the east, Pauri Garhwal from the south and Dehradun from the west are bounding the districts. Total area of the district is 4421 sq. km. The district headquarters is located at New Tehri Town since April 1, 1989. Yamuna River separates it from the western front to Jaunsar Pargana of the Dehra Dun district while Bhagirathi rising from the north of the Gangotri in the district Uttarkashi touches the district near village Nagun.

21. According to the 2011 census Tehri Garhwal district has a population of 616,409. This gives it a ranking of 520th in India (out of a total of 688). The district has a population density of 169 inhabitants per square kilometer (440/sq mi). Its population growth rate over the decade 2001–2011 was 1.93%. Tehri Garhwal has a sex ratio of 1078 females for every 1000 males, and a literacy rate of 75.1%. Hindus number 596,769; Muslims 6,390 (1.05%); and Sikhs 561.

22. Pauri Garhwal is also a district of Uttarakhand. It is situated between 29° 45' to 30°15' Latitude and 78° 24' to 79° 23' E Longitude and has an area of 5230 km<sup>2</sup>. It is divided into nine tehsils and fifteen developmental blocks. Pauri is the administrative centre for the whole of Pauri Garhwal region and is situated at an altitude of 1650 m and has a population

of 24,743. Pauri provides a panoramic view of the snow covered Himalayan peaks of Nanda Devi and Trisul, Gangotri Group, Thalaiya-Sagar, Nilkantha, Bandar Poonch, Swargarohini, Kedarnath, Kharcha Kund, Satopanth, Chaukhamba, Ghoriparvat, Haathi Parvat, Sumeru, etc. The errand across Kandoliya-Tekka stretch along evergreen deodar trees is worth walking. The town is visited by tourists, researchers and students from across the world. The place is paradise for trekkers, paragliding enthusiasts and nature lovers.

23. Pauri District is well connected with road. The Tehri- Moradabad State highway connects the major destinations of Pauri district like Kotdwar, Lansdowne, Pauri, Srinagar, etc. Accessibility conditions are very nice with Railhead at each entry points like Kotdwar, Rishikesh, Haridwar & Ramnagar. Regular buses, taxies, car rentals run from these places to all parts of the districts and adjoining areas. Scheduled Roadways, GMOUL, KMOUL and other private buses are available from here. Nearest Airport is Jolly grant (Dehradun) which is around 155 km from the district HQ. A newly constructed bridge at Devprayag over the confluence of river Alaknanda and Bhagirathi had cut short the accessibility of Pauri via Rishikesh by 18 km.

24. As of 2011 India census, Pauri Garhwal had a population of 6,86,527 of which male and female were 3,26,406 and 3,60,121 respectively. In 2001 Census Pauri Garhwal had a population of 6, 97,078 of which male and female were 3, 31,061 and 3, 66,017. The decadal growth of district in 1991-2001 is 3.91 and 2001-11 is -1.51

#### **Present Status of Rural Tourism Development Sites:**

25. The locations of all sites of sub-project are undulating as these are located in the hilly region of Uttarakhand. The site at Kanvashram is located close to Malini River. Two other sub-project sites namely Kalalghati and Mavakot are at 1.2 and 1.3 km from Malini River. There is no local stream or river close to the remaining 10 sites. At the selected villages of Rural Tourism, pathways used in villages are in poor conditions, solid waste collection and disposal facilities are also limited and there is lack of signages to reach these destinations.

26. The expected impact of the sub-project is sustainable and inclusive tourism development in rural areas, 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.

27. 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 Rural Tourism**' is categorized as B and an Initial Environmental Examination (IEE) is prepared. This IEE assesses the environmental impacts due to the

proposed development works and specifies measures towards addressing the impacts. The IEE is 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. The completed REA checklist and environmental selection criteria (as per EARF) have been given in **Annexure-1** and **Annexure-2** respectively.

## **2. Purpose of the IEE**

28. This IEE assesses the environmental impacts due to the proposed sub-project and specifies measures towards addressing the impacts. The IEE is 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. 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 sub-project has been prepared.

## **3. Environmental Regulatory Compliance**

29. The realm of environmental regulations and mandatory requirements for the proposed sub-project is shown in **Table 2**. The Environmental Impact Assessment (EIA) Notification, 2006 by the Ministry of Environment, Forests and Climate Change (MoEFCC, Government of India) specifies the mandatory environmental clearance requirements. Accordingly, all projects and activities are broadly categorized into two categories<sup>1</sup> - 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

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

ambit of the EIA notification, Environment clearance requirements from the Government of India are not triggered.

**Table 2: Environmental Regulatory Compliance**

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
Development of Rural Tourism	The EIA notification, 2006 (and its subsequent amendments till date) provides for categorization of projects into category A and B, based on extent of impacts.	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 Government of India is not triggered. <b>Not Applicable</b>
	The EIA Notification, 2006 (and its subsequent amendments till date) provides for categorization of projects into category A and B, based on extent of impacts.	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 Government of India is not triggered. <b>Not Applicable</b>
	The Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the Rules, 1959 provide guidance for carrying out activities, including conservation, construction and reuse in and around the protected monuments.	The sites of Rural Tourism at 13 locations are not close to any ASI protected monument. Hence no permission is needed from ASI. <b>Not Applicable</b>
	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 Uttarakhand Environment Protection and Pollution Control Board for all sub-projects requiring, setting up of hot mix plants, wet mix plants, stone crushers and diesel generators. <b>Applicable during construction phase</b>

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Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
	The Wildlife (Protection) Act, 1972, amended in 2003 and 2006, provides for protection and management of Protected Areas.	No wildlife protected areas nearby. The nearest sub-project site location at Sendikhal is about 12 km from Corbett National Park.  <b>Not Applicable</b>
	The 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 categories of forests for diversion of forest land. This law describes the penalty for contravention of the provisions of the Act. Restriction on the de-reservation of forests or use of forest land for non-forest purpose. If forest land is to be acquired for the project, the Forestry Clearance needs to be taken. In the current case out of 13 locations, only Kanvashram site is located in Reserved forest area. For this site Forest Clearance under the Forest (Conservation) Act, 1980 has been obtained ( <b>Annexure-3</b> ).
	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 ( Ref: REA Checklist <b>Annexure-1</b> and EARF Selection Criteria <b>Annexure-2</b> )
	Permission for Water withdrawal from canal for artificial lake at Kanvashram site	The UTDB will take permission from Uttarakhand Irrigation Department for withdrawal of water from canal for artificial lake at Kanvashram site. For this UTDB has initiated the process. This permission is needed before start of operation phase of the sub project. <b>Applicable</b>
	NOC from Central Ground Water Authority for proposed two bore wells at Kanvashram sub-project site.	For 2 bore wells NOC requirement is not there as details provided in the document titled 'Guidelines/Criteria for evaluation of proposals/requests for ground water abstraction (dated 16 -11-2015)', of Central Ground Water Authority of Government of India. According to these guidelines areas

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
		<p>all over the country have been identified as 'Notified' and 'Non Notified'. In Notified areas, no ground water extraction is allowed except for drinking and in 'Non Notified Areas' permission is granted by the district collector. Basically Notified areas are those which are critically, semi critically, saline or over exploited.</p> <p>The non notified areas are those which are regulated and permission is given by the district administration head (District collector/Commissioner/ District Magistrate). In case of Kanvashram site, the area does not fall in any of the categories mentioned above. So ground water regulation is not warranted, hence no permission is needed from district administration for 2 bore wells proposed.</p> <p><b>Not Applicable</b></p>

30. 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 Government of India or GOUK are not envisaged.

The ADB guidelines, stipulate addressing environmental concerns, if any, of a proposed activity in the initial stages of Project preparation. For this, the ADB Guidelines categorizes the proposed components into categories (A, B or C) to determine the level of environmental assessment<sup>2</sup> required to address the potential impacts. The Rapid Environmental Assessment (REA) checklist method was followed as per ADB requirement to assess the potential impacts of the project in planning phase. The REA checklist is attached as **Annexure-1** with this report. The sub-project has been categorized as B. Accordingly this IEE is prepared to address the potential impacts, in line with the recommended IEE content and structure for Category B projects. The IEE report is based mainly on baseline data generation on environmental parameters and secondary sources of information and field

<sup>2</sup> 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).

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**

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

### **4. Report Structure**

32. This Report contains eight (8) sections including this introductory section: (i) Introduction; (ii) Description of Project Components; (iii) Description of the Existing Environment; (iv) Environmental Impacts and Mitigation Measures; (v) Environmental Management Plan; (vi) Public consultation & Information Disclosure; (vii) Findings and Recommendations; and (viii) Conclusions.

## **II. DESCRIPTION OF THE PROJECT COMPONENTS**

### **1. Need of the Sub-project**

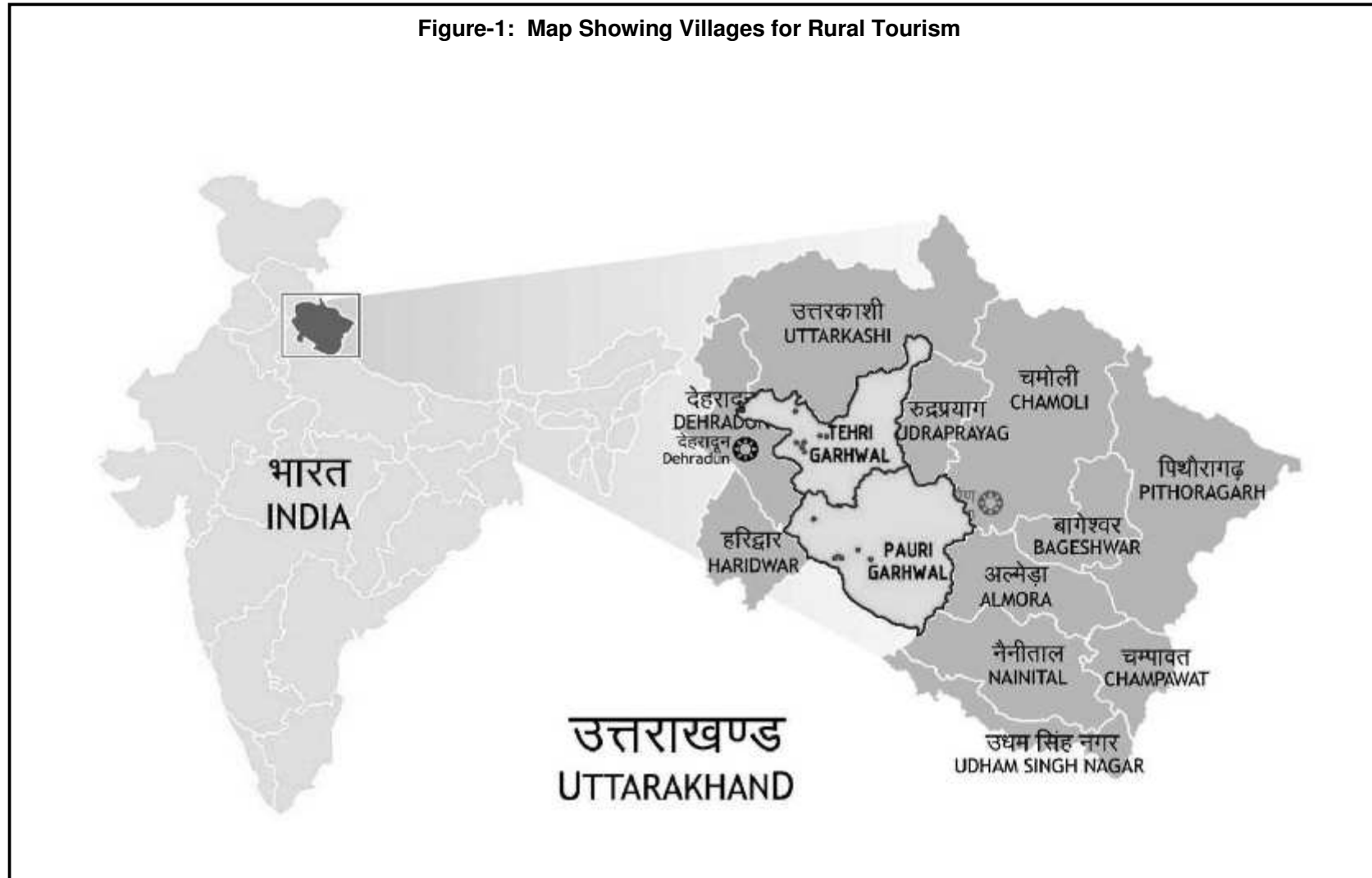
33. At all the 13 rural tourists destinations identified there are no basic infrastructure facilities, such as sanitation, solid waste collection and disposal, and lack of signages to make aware the tourists about potential site. The Government of Uttarakhand has formulated a home stay policy to promote rural tourism. In order to comply with the home stay policy, there is need to provide basic infrastructure at the identified villages.

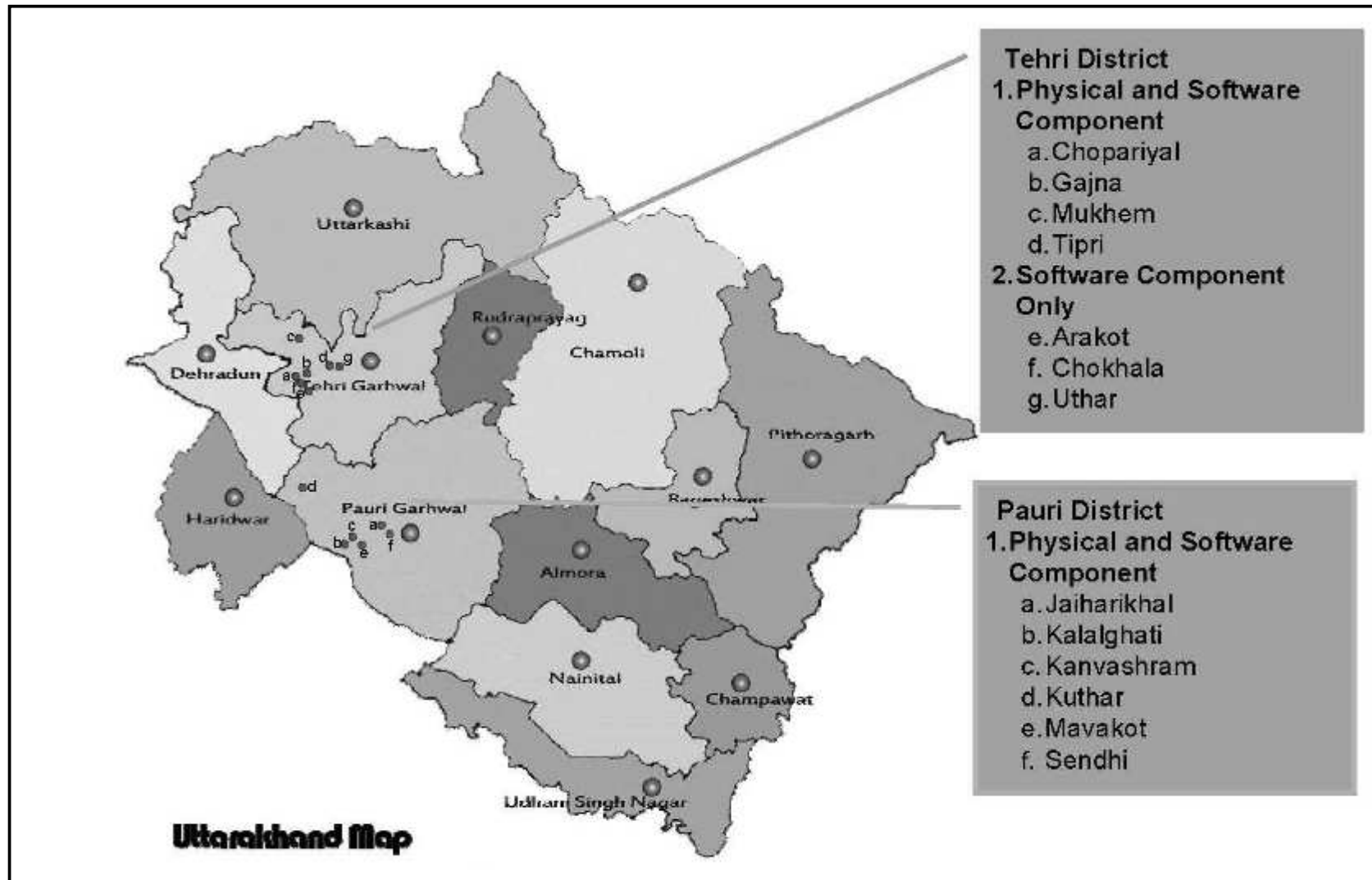
### **2. Locations of Sub-project Sites**

34. The locations of the sub-project sites have been shown in **Figure-1** for both the districts. The facilities planned at various sites of sub-project have been detailed in **Table-3**. The sub-project sites photographs have been provided **Annexure-4**. The Kanvashram sub-project site is in reserved forest area. The photographs of this site and surroundings have also been given in **Annexure-4**.



Figure-1: Map Showing Villages for Rural Tourism





### **3. Project Category**

35. The sub-project 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 Government of India EIA Notification (2006).

### **4. Description of Facilities Planned at Sub-project Sites**

36. The facilities planned at locations of rural tourism sites have been given in **Table-3** below. The locations of all 13 villages selected have been shown in **Figure-2**. The layout plan for planned facilities at Kanvashram site has been given in **Figure-3**. The layout drawings of Training centers planned at Chopriyal, Mavakot and Kuthar in villages has been shown in **Figure-4**. The drawings of Toilet blocks planned at Rural Tourism villages have been given in **Figure-5**.

**Table-3: Planned Infrastructure Facilities at Sub-project Sites**

Sl. No.	District	Villages	Panchayat	Planned Facilities
1.	Pauri Garhwal	Kanvashram	Bhimsinghpur	<b>Construction of Lake</b> <ul style="list-style-type: none"> <li>• Site Preparation</li> <li>• Embankment Wall</li> <li>• Railing work</li> <li>• Development of Island</li> <li>• Inlet and Outlet Drain</li> <li>• Gazebo (7 nos)</li> <li>• Car Parking</li> <li>• Driveway</li> <li>• Pathway</li> <li>• Boundary Wall</li> <li>• Development of Kanva rishi ashram</li> <li>• Multi Facility Centre</li> <li>• Amphitheatre</li> <li>• Security Room</li> <li>• Bridge</li> <li>• Electrical work including water fountain</li> <li>• Outdoor Gym Equipment's</li> <li>• Equipment's for Children Park</li> <li>• Peddle Boat</li> <li>• Garden Benches</li> <li>• Dustbins</li> </ul>
		Kalalghati	Lachampur	<ul style="list-style-type: none"> <li>• Toilet Block (1no)</li> <li>• 700 m Water distribution line</li> <li>• Solar Lightning System</li> <li>• Garbage Bins</li> <li>• Electrical work for toilet block</li> </ul>
		Mavakot	Mavakot	<ul style="list-style-type: none"> <li>• Training cum Production Centre along with toilet (1no)</li> <li>• Toilet Complex at Mela Ground (1no)</li> <li>• Drinking water fountain at Mela Ground (1 no)</li> </ul>

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Sl. No.	District	Villages	Panchayat	Planned Facilities
				<ul style="list-style-type: none"> <li>• Seating arrangement around tree at Mela Ground.</li> <li>• Garbage Bins (2 nos)</li> <li>• Garbage bin</li> <li>• Electrical work for production centre.</li> </ul>
		Jaiharikhal	Jaiharikhal	<ul style="list-style-type: none"> <li>• Urinal Complex (1 no)</li> <li>• Bench with shed (5 nos)</li> <li>• Solar lightning system.</li> <li>• Garbage Bins (4 nos)</li> <li>• Sign Board/Name Plate etc.</li> </ul>
		Sendhikhal	Sendhikhal	<ul style="list-style-type: none"> <li>• Seating arrangement around tree near temple.</li> <li>• Hand Railing (300 m)</li> <li>• Bench with shed (5 nos)</li> <li>• Solar lightning system.</li> <li>• Garbage Bins (3 nos)</li> <li>• Sign Board/Name Plate etc.</li> </ul>
		Kuthar	Kuthar	<ul style="list-style-type: none"> <li>• Training cum Production Centre along with toilet (1no)</li> <li>• Toilet Complex at Mela Ground (1no)</li> <li>• Repairing of existing Water Vat for curing of Bhimal Tree for getting fiber.</li> <li>• Desilting of existing water body and its side Development</li> <li>• Seating Arrangement along the tree at Kuthar.</li> <li>• Fencing with Green Net -100m</li> <li>• Sign Board/Name plate etc.</li> <li>• Solar Lighting System.</li> <li>• Garbage Bins - 3 Nos</li> <li>• Electrical Works for Production Centre and Toilet Complex</li> </ul>
2.	Tehri Garhwal	Gajana	Gajana	<ul style="list-style-type: none"> <li>• Seating Arrangement (2 nos)</li> <li>• Hand Railing for trek (200 m)</li> <li>• Bench with shed (2 nos)</li> <li>• Solar Lightning System (5 nos)</li> </ul>

**Infrastructure Development Investment Program for Tourism, Uttarakhand (IDIPT: Tranche III)**  
**Initial Environmental Examination**  
**Development of Rural Tourism Infrastructure in Pauri and Tehri District**

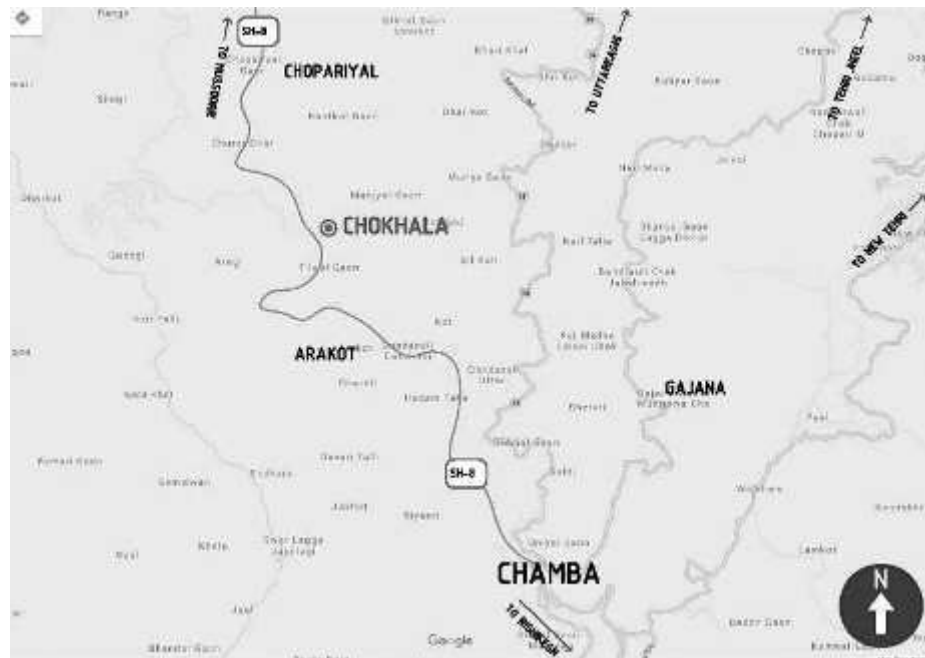
Sl. No.	District	Villages	Panchayat	Planned Facilities
				<ul style="list-style-type: none"> <li>• Garbage Bins (2 nos)</li> <li>• Sign Board/Name Plate etc.</li> </ul>
		Arakot	Arakot	Nil
		Chokhala	Dedoor	Nil
		Chopariyal	Chopariyal	<ul style="list-style-type: none"> <li>• Training cum Production Centre along with toilet (1 no)</li> <li>• Kiosk (3 x 3 m)</li> <li>• Solar Lightning System (5 nos)</li> <li>• Garbage Bins (2 nos)</li> <li>• Sign Board/Name Plate etc.</li> <li>• Electrical work for production centre and kiosk</li> </ul>
		Tipri	Tipri	<ul style="list-style-type: none"> <li>• Toilet Block (1 no)</li> <li>• Bench with shed</li> <li>• Solar Lightning System</li> <li>• Garbage Bins (2 nos)</li> <li>• Sign Board/Name Plate etc.</li> <li>• Electrical work for toilet block</li> </ul>
		Uthar	Uthar	Nil
		Mukhem	Mukhem	<ul style="list-style-type: none"> <li>• Bench with shed (5 nos)</li> <li>• Pathway (150 m)</li> <li>• Garbage Bins</li> <li>• Sign Board/Name Plate etc.</li> </ul>

**Figure-2: Locations of Villages Selected for Rural Tourism**

**Tehri District**



**Location Map of Arakot**



**Location Map of Chokhala**



**Location Map of Chopariyal**



**Location Map of Gajana**

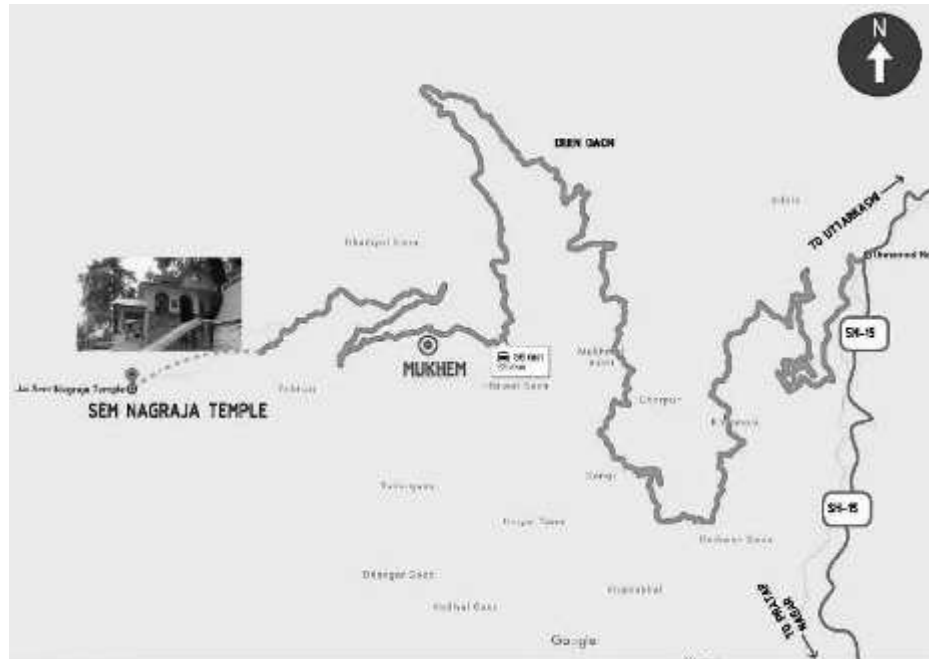




**Location Map of Tipri**

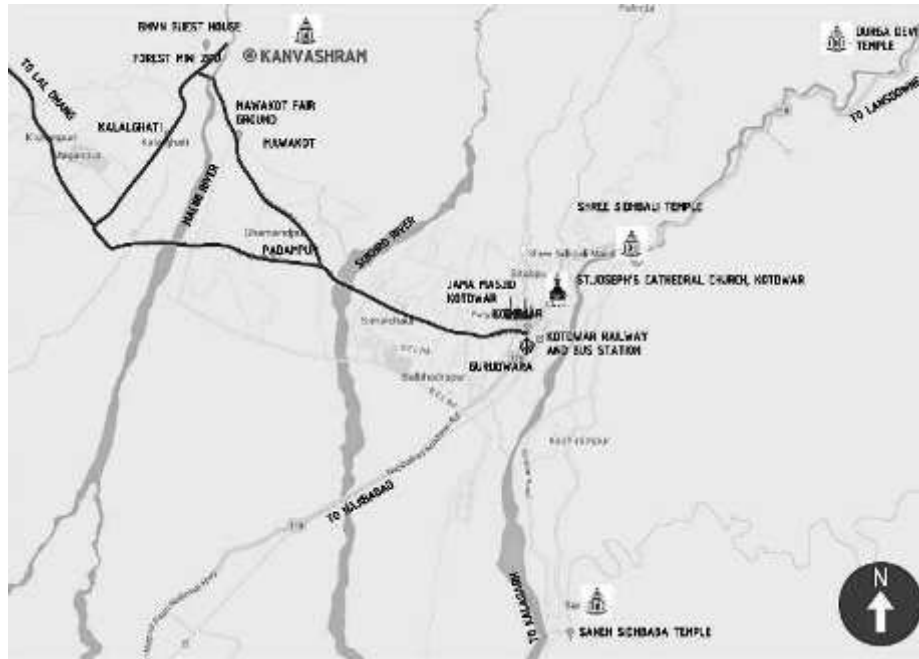


**Location Map of Uthar**

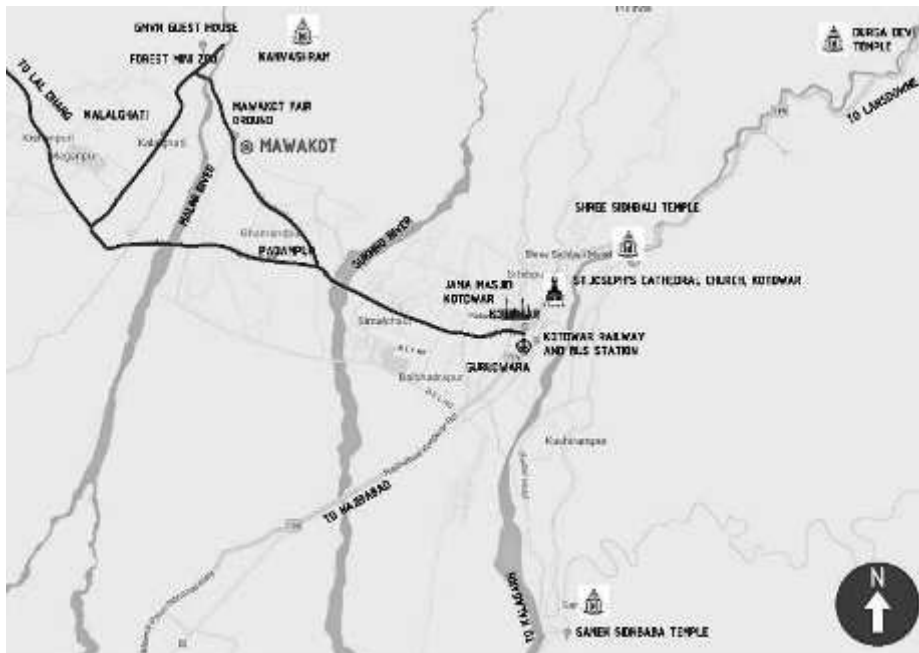


### Location Map of Mukhem

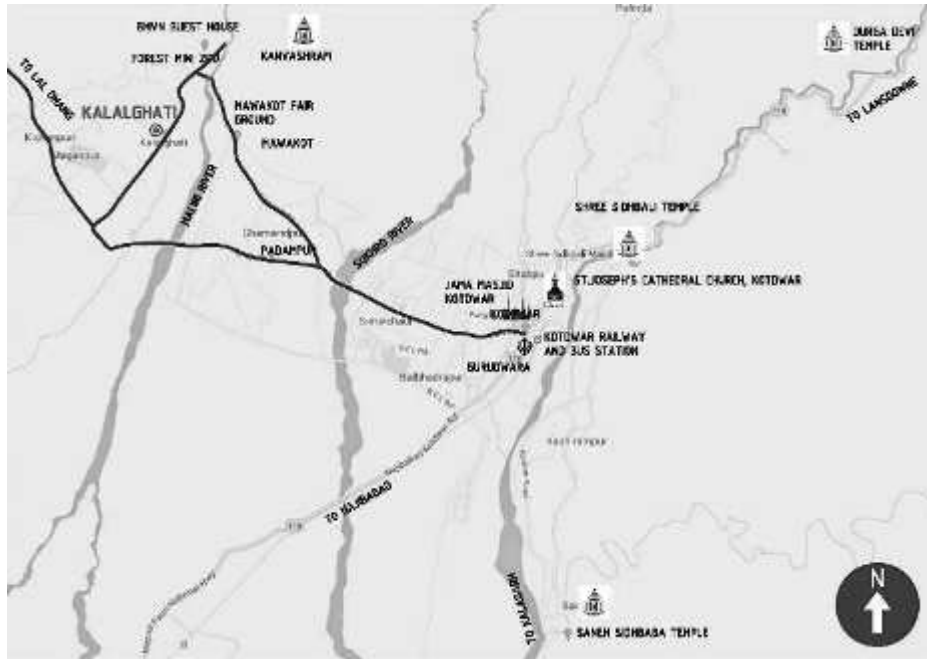
### Pauri District



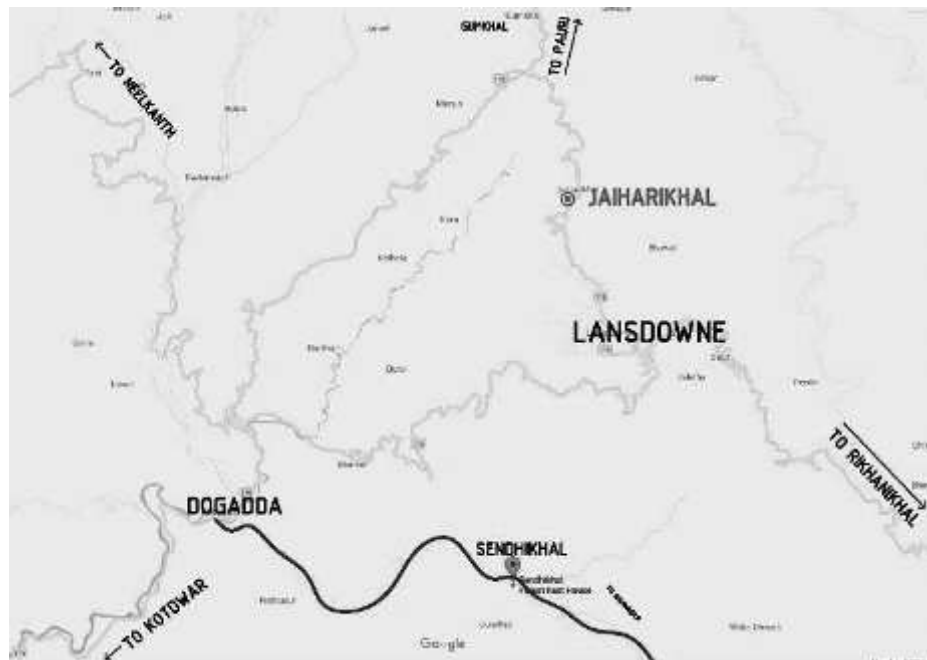
### Location Map of Kanvashram



### Location Map of Mavakot



**Location Map of Kalalghati**



**Location Map of Jaiharikhal**



Source: Indian Geo platform of ISRO  
[http://bhuvan.nrsc.gov.in/governance/UK\\_forest#](http://bhuvan.nrsc.gov.in/governance/UK_forest#)

**Location Map of Sendhikhal**



**Location Map of Kuthar**

**Figure-3: Layout Plan for Kanvashram site**

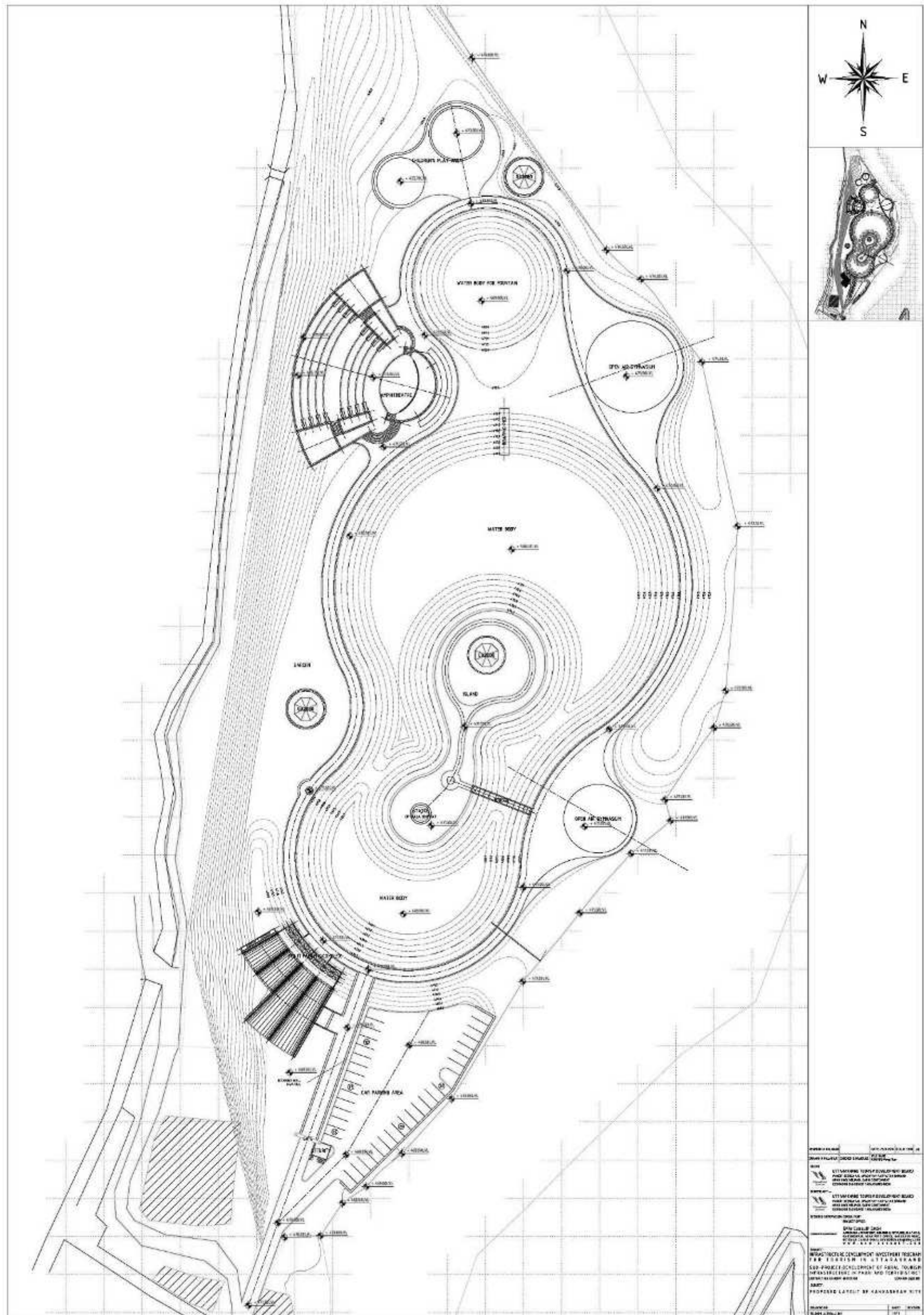


Figure-4: Drawing of Training cum Production Centers at Chopariyal, Mavakot and Kuthar

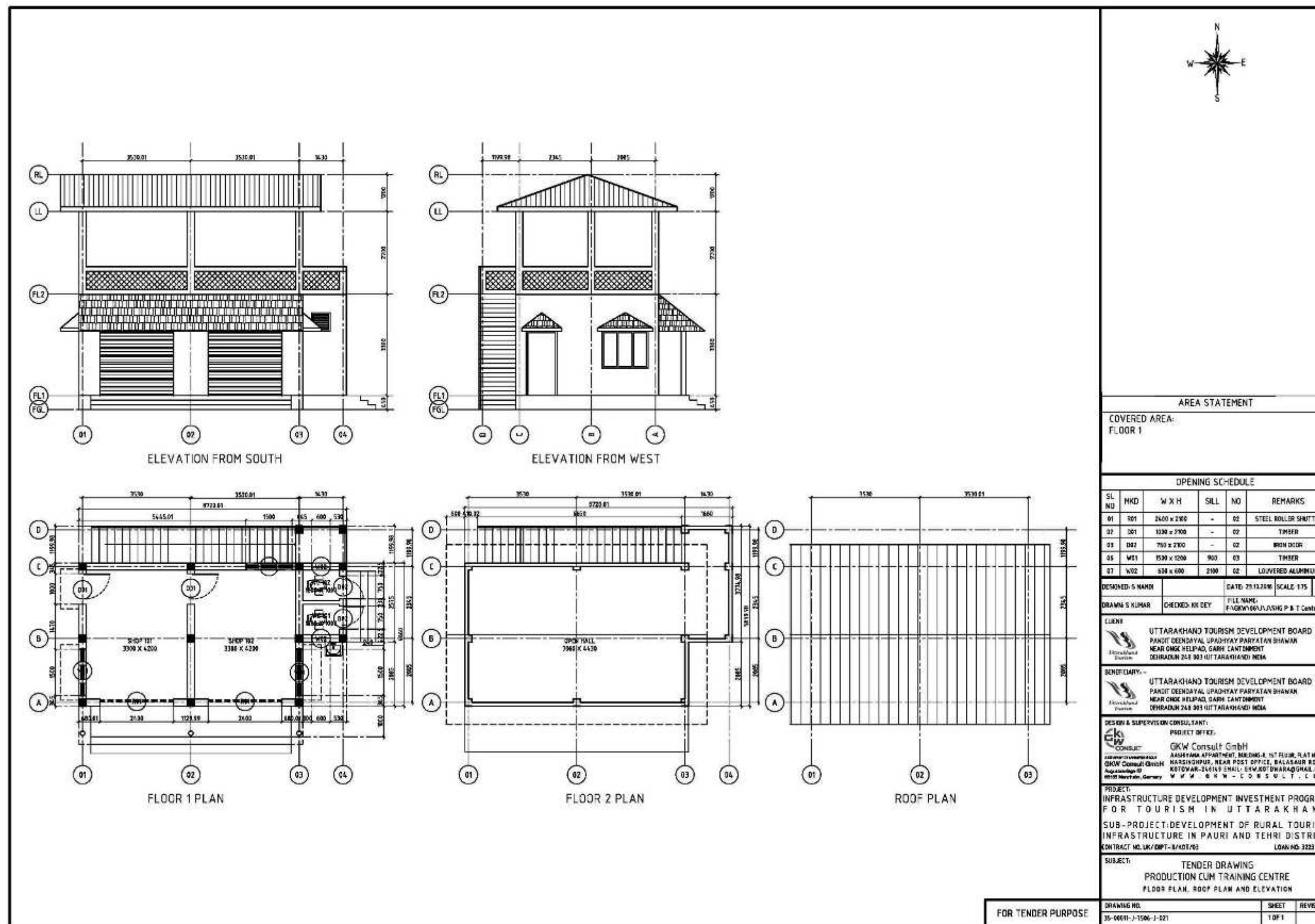
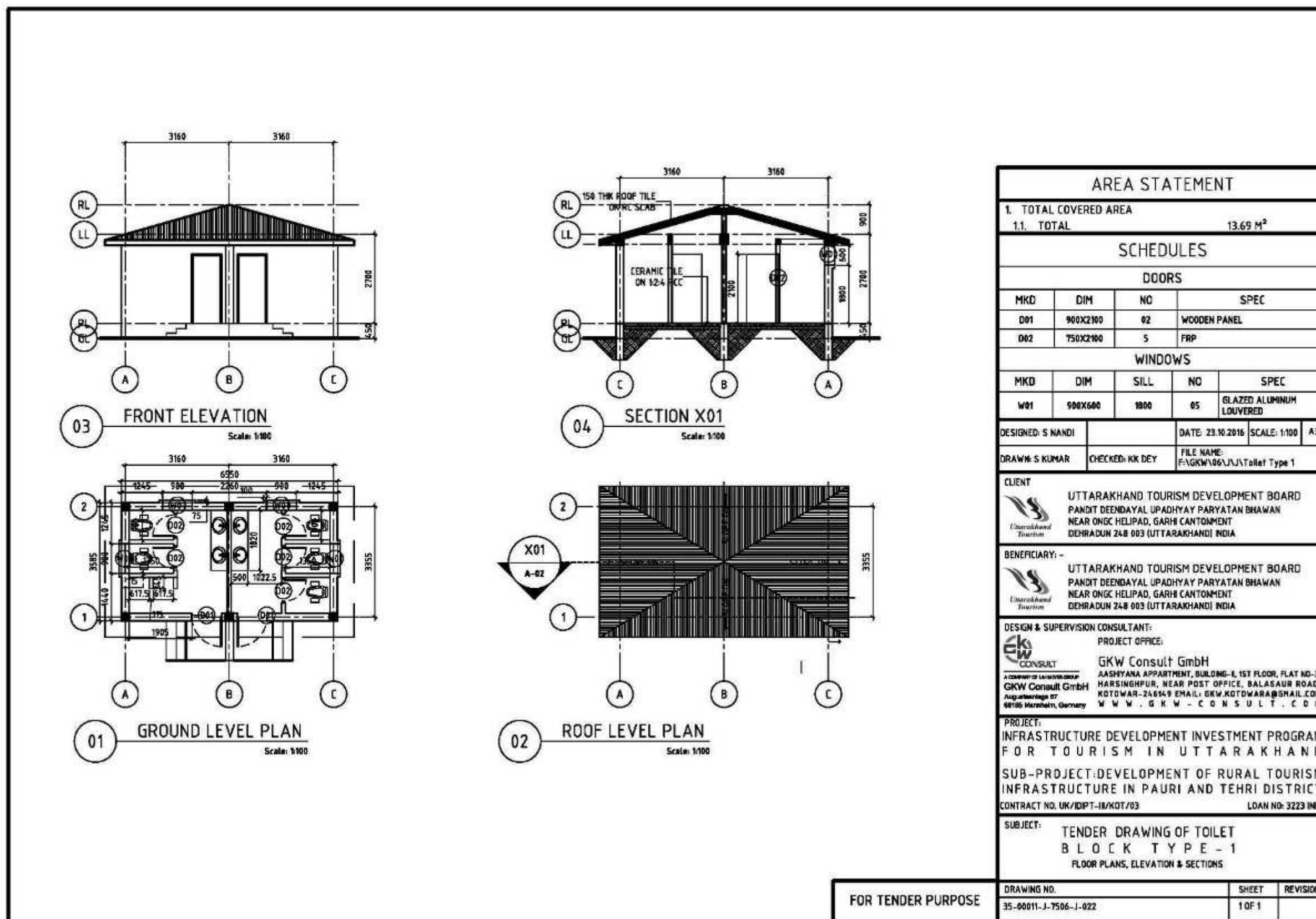
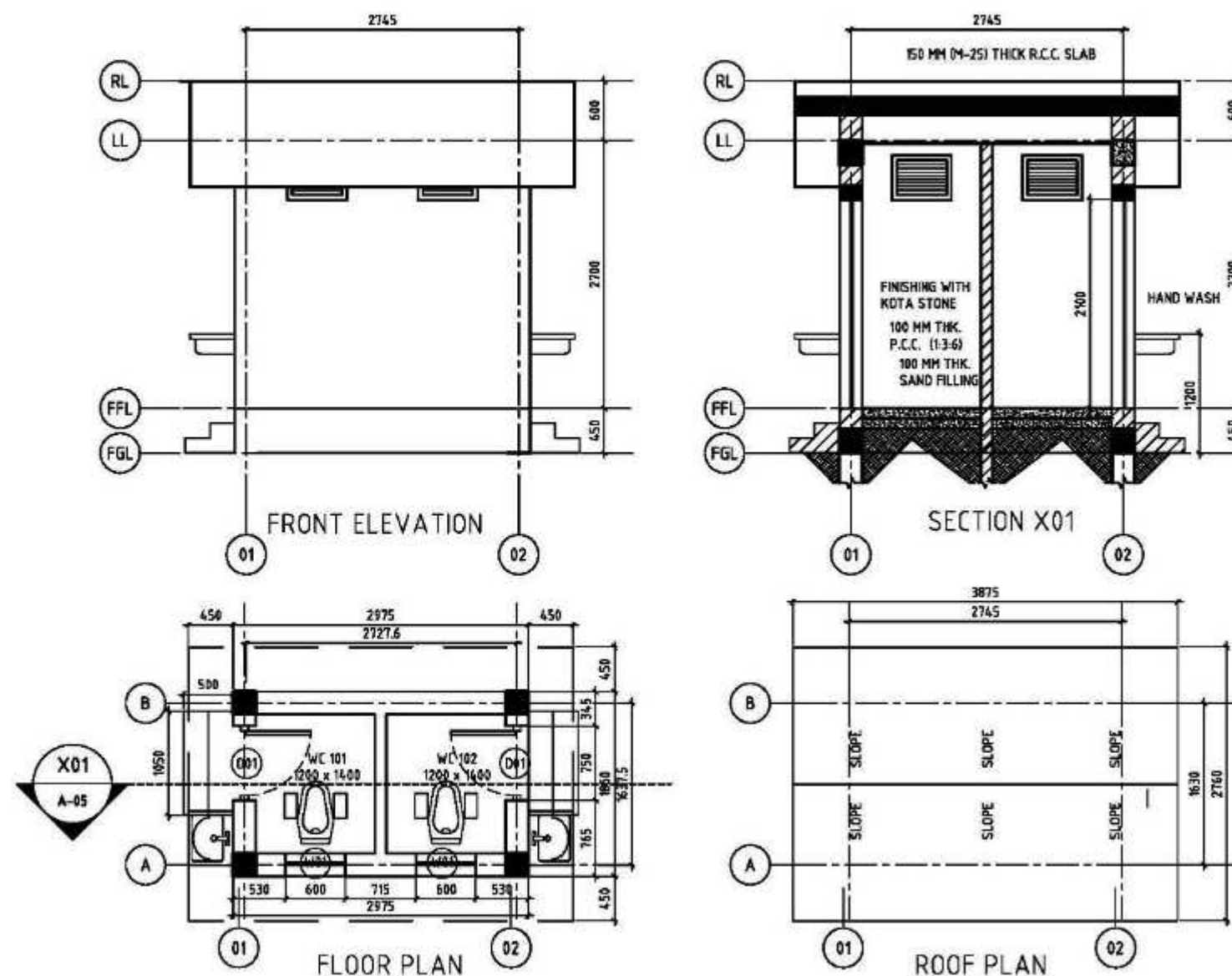




Figure-5: Drawings of Toilet Blocks Planned at Rural Tourism Villages







FOR TENDER PURPOSE

# AREA STATEMENT

COVERED AREA: 5.6 SQM

## OPENING SCHEDULE

### DOOR

SL NO	MKD	W X H	SILL	NO	REMARKS
01	D01	750 x 2100	-	02	IRON DOOR

### WINDOW

01	W01	600 x 450	2100	01	ALUMINUM LOUVERED
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DESIGNED: S NANDI DATE: 23.10.2016 SCALE: 1:50 A3

DRAWN: S KUMAR CHECKED: KK DEY FILE NAME: F:\GKW\06\UJ\Tollet Type 2

**CLIENT**  
UTTARAKHAND TOURISM DEVELOPMENT BOARD  
PANDIT DEENDAYAL UPADHYAY PARYATAN BHAWAN  
NEAR ONGC HELIPAD, GARHI CANTONMENT  
DEHRADUN 248 003 (UTTARAKHAND) INDIA

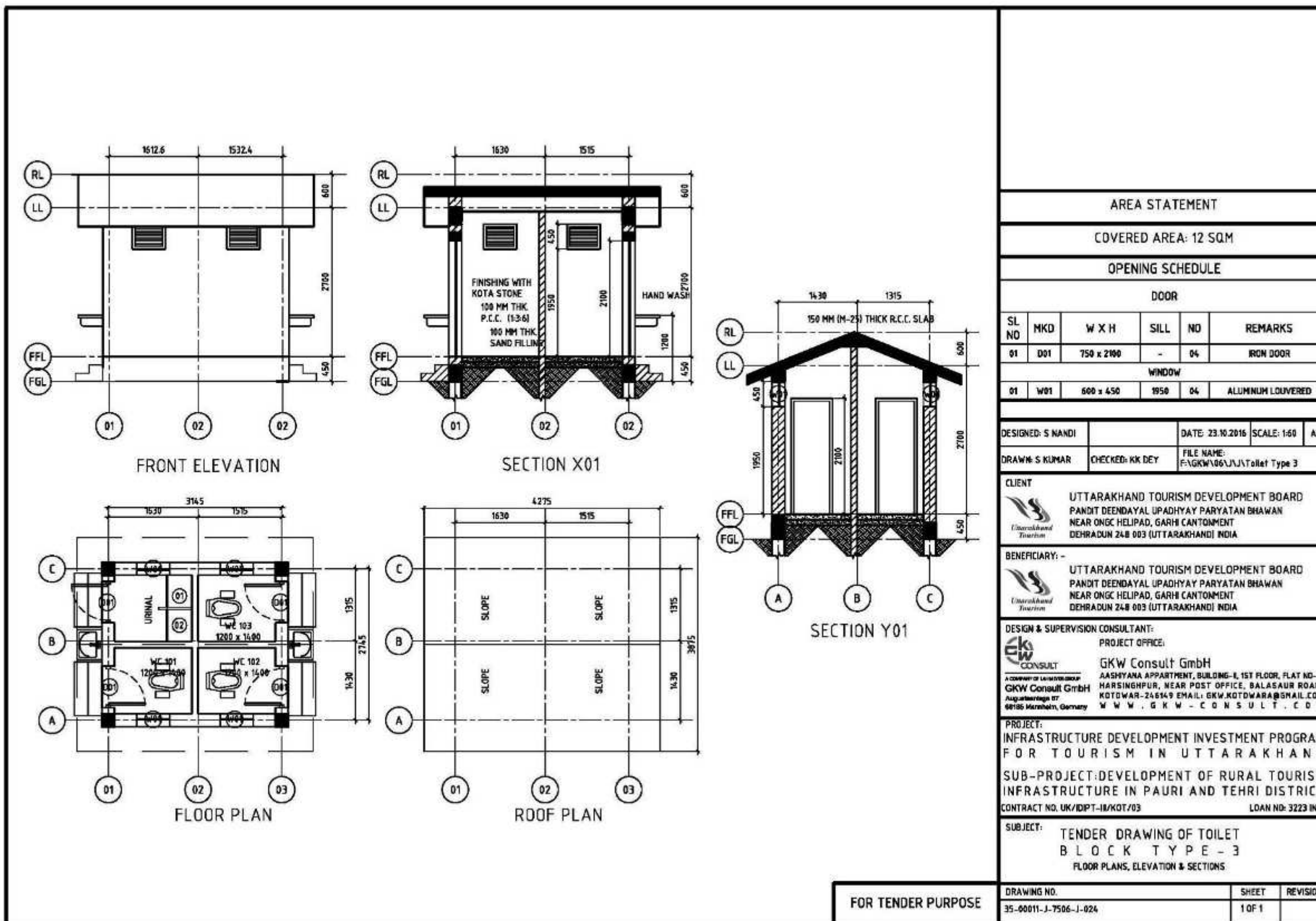
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UTTARAKHAND TOURISM DEVELOPMENT BOARD  
PANDIT DEENDAYAL UPADHYAY PARYATAN BHAWAN  
NEAR ONGC HELIPAD, GARHI CANTONMENT  
DEHRADUN 248 003 (UTTARAKHAND) INDIA

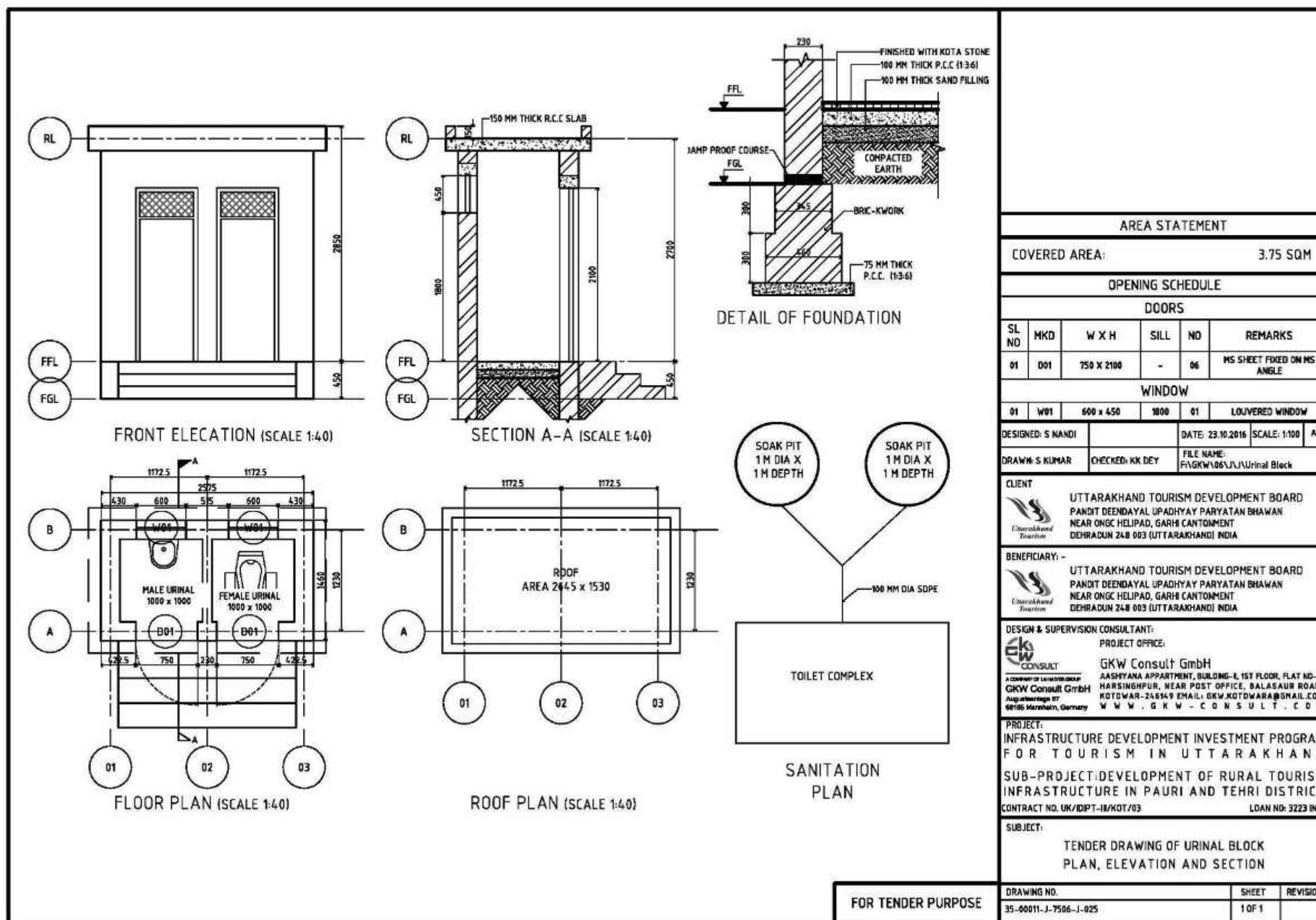
**DESIGN & SUPERVISION CONSULTANT:**  
PROJECT OFFICE:  
GKW Consult GmbH  
AASHYANA APARTMENT, BUILDING-1, 1ST FLOOR, FLAT NO-3,  
HARSINGHPUR, NEAR POST OFFICE, BALASOUR ROAD,  
KOTDWAR-245149 EMAIL: GKW.KOTDWARA@GMAIL.COM  
WWW.GKW-CONSULT.COM

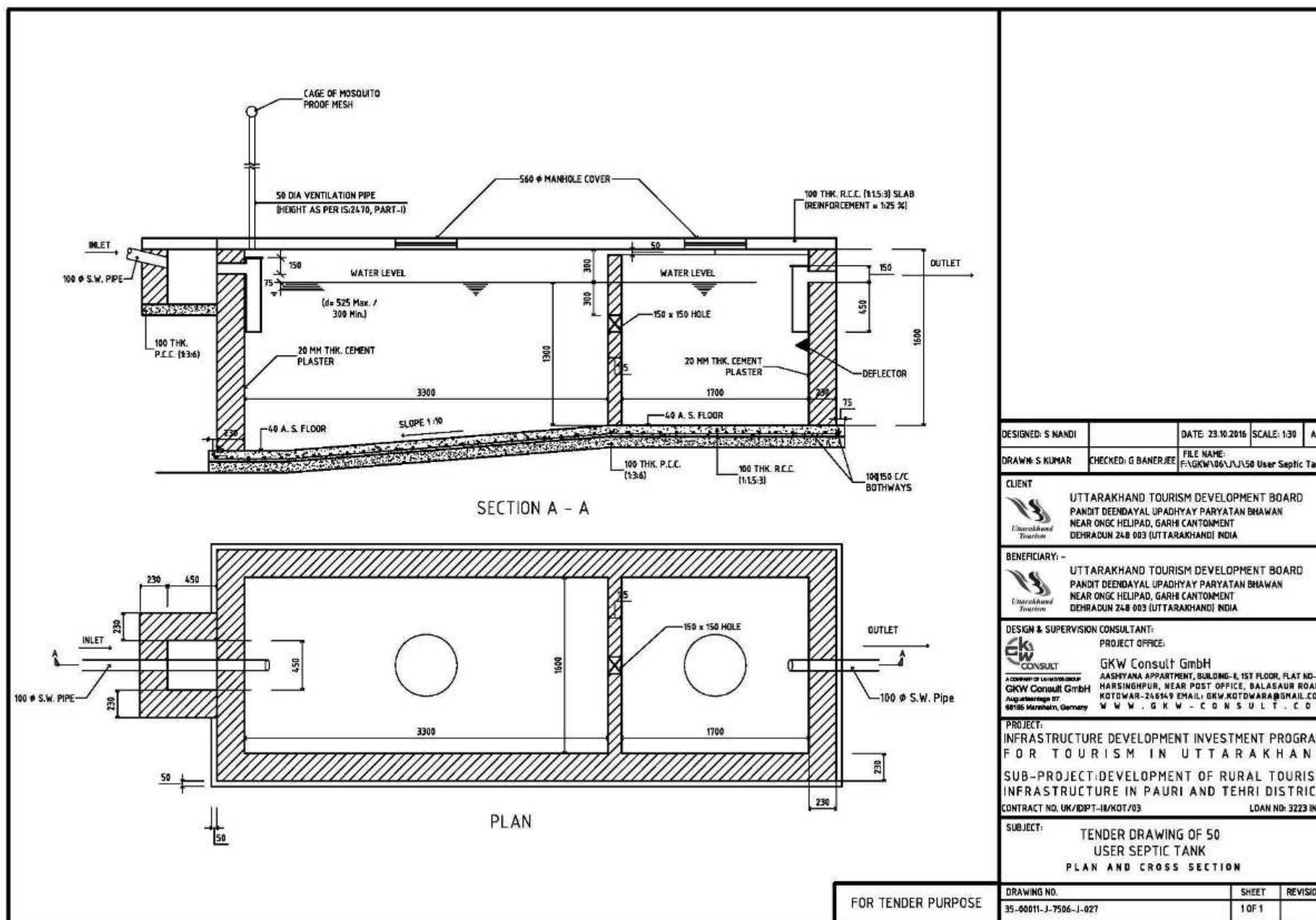
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INFRASTRUCTURE DEVELOPMENT INVESTMENT PROGRAM  
FOR TOURISM IN UTTARAKHAND  
SUB-PROJECT: DEVELOPMENT OF RURAL TOURISM  
INFRASTRUCTURE IN PAURI AND TEHRI DISTRICT  
CONTRACT NO. UK/IDIPT-III/KOT/03 LOAN NO: 3223 IND

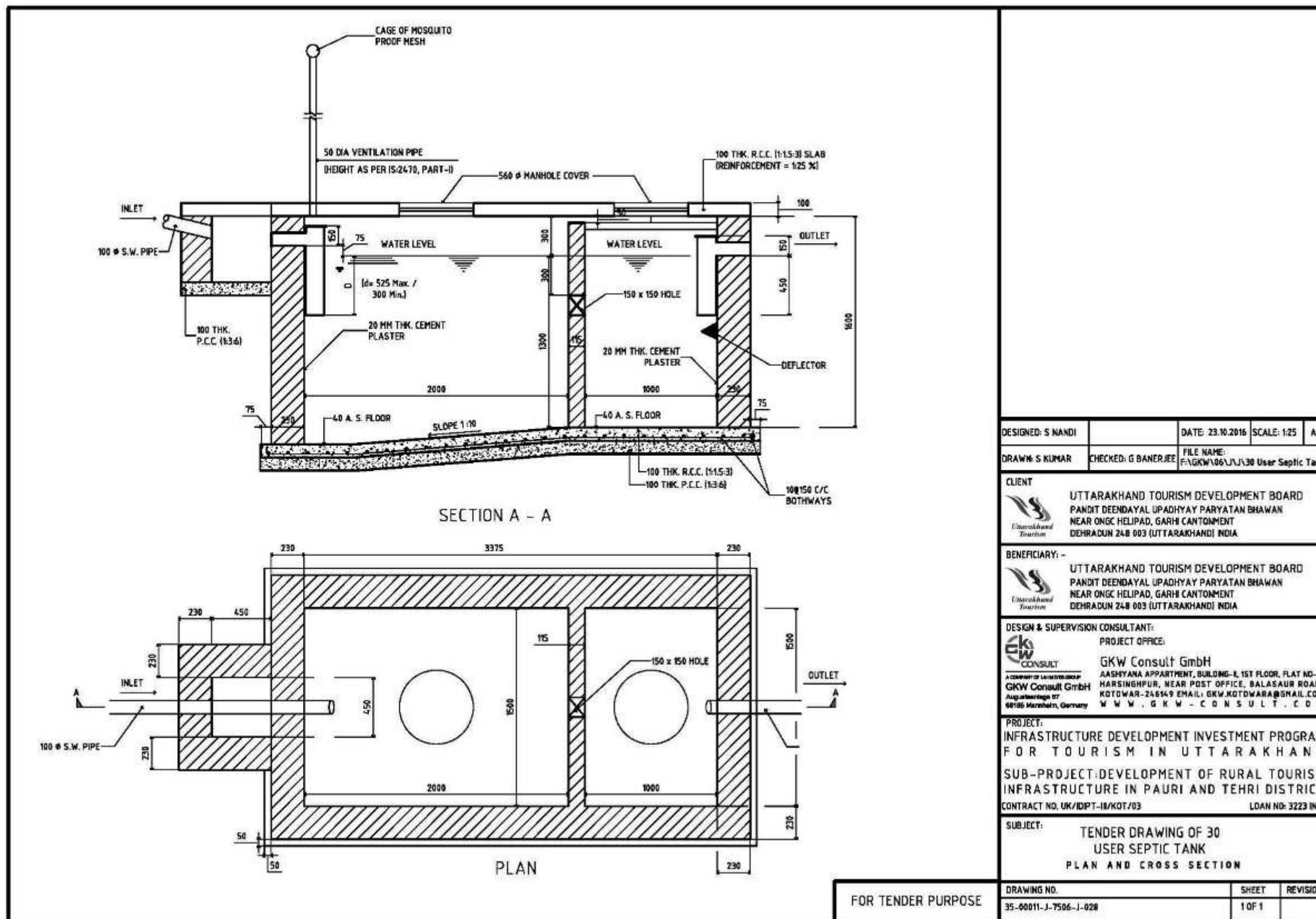
**SUBJECT:**  
TENDER DRAWING OF TOILET  
BLOCK TYPE - 2  
FLOOR PLANS, ELEVATION & SECTIONS

DRAWING NO.	SHEET	REVISION
35-00011-J-7506-J-023	1 OF 1	

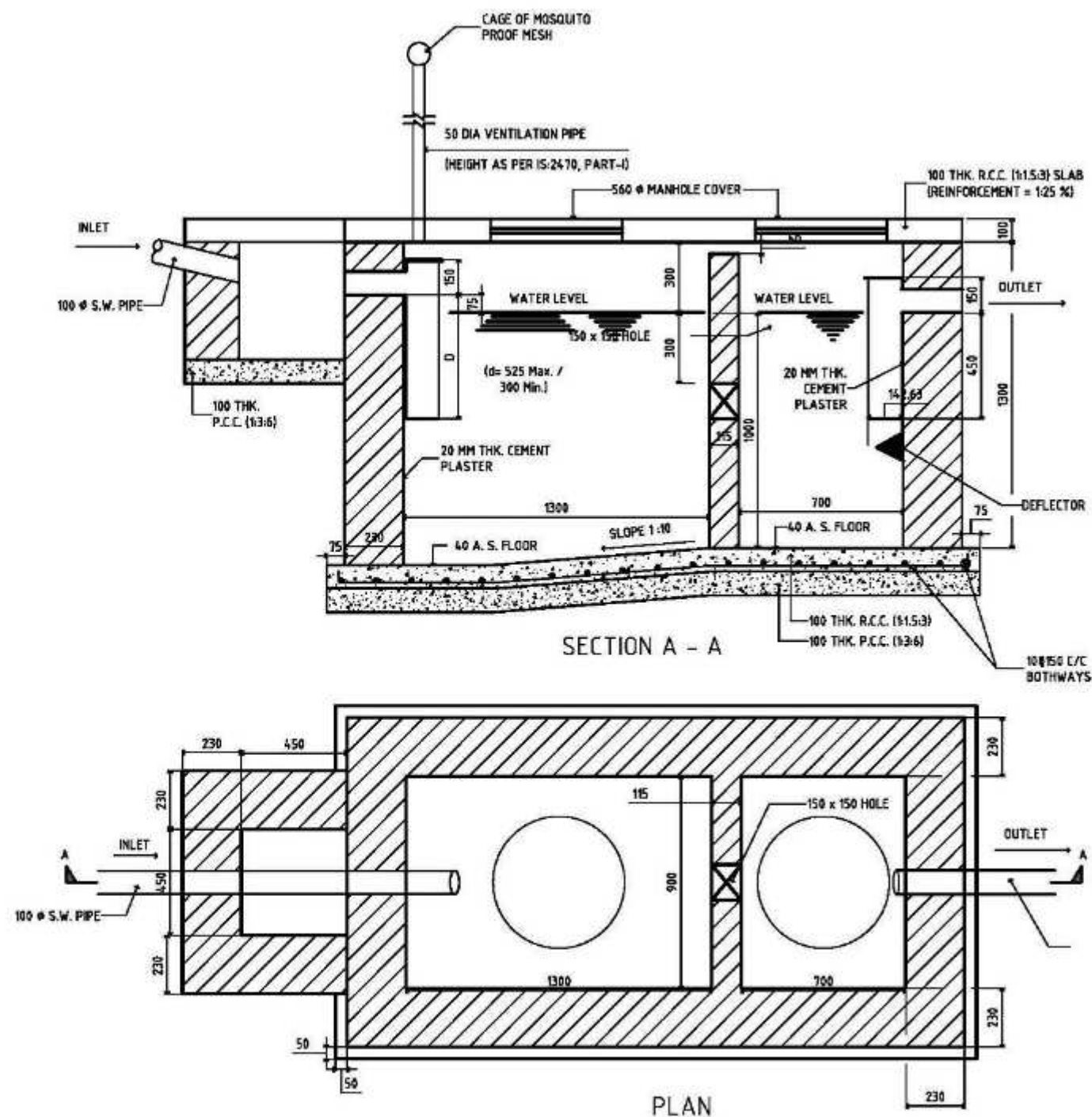












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DRAWN: S KUMAR	CHECKED: G BANERJEE	FILE NAME: F:\GKW\06\UJ\10 User Septic Tank	
<b>CLIENT</b>  UTTARAKHAND TOURISM DEVELOPMENT BOARD PANDIT DEENDAYAL UPADHYAY PARYATAN BHAWAN NEAR ONGC HELIPAD, GARHI CANTONMENT DEHRADUN 248 003 (UTTARAKHAND) INDIA			
<b>BENEFICIARY: -</b>  UTTARAKHAND TOURISM DEVELOPMENT BOARD PANDIT DEENDAYAL UPADHYAY PARYATAN BHAWAN NEAR ONGC HELIPAD, GARHI CANTONMENT DEHRADUN 248 003 (UTTARAKHAND) INDIA			
<b>DESIGN &amp; SUPERVISION CONSULTANT:</b> PROJECT OFFICE:  GKW Consult GmbH A COMPANY OF UJH/2016/000009 GKW CONSULT GmbH Augustenstrasse 17 66185 Mannheim, Germany WWW.GKW-CONSULT.COM			
<b>PROJECT:</b> INFRASTRUCTURE DEVELOPMENT INVESTMENT PROGRAM FOR TOURISM IN UTTARAKHAND <b>SUB-PROJECT:</b> DEVELOPMENT OF RURAL TOURISM INFRASTRUCTURE IN PAURI AND TEHRI DISTRICT CONTRACT NO. UK/IDIPT-III/KOT/03 LOAN NO: 3223 IND			
<b>SUBJECT:</b> TENDER DRAWING OF 10 USER SEPTIC TANK PLAN AND CROSS SECTION			

FOR TENDER PURPOSE

## **5. Implementation Schedule**

37. The implementation period for the proposed sub-project is 24 months. Except Kanwashram the work components in other villages is very less where construction period shall be 6-7 months only. The bidding process and appointment of contractor will be completed by April 30, 2017. Construction of all elements will begin in May/June 2017, and work will be completed by June, 2019.

### 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 Sub-project are presented. Secondary information was collected from relevant government agencies like the Forest Department, State Environment Protection, and Pollution Control Board, and Meteorological Department.

#### 1. Environmental Profile

##### Air and Noise Quality

39. No air pollution sources (point or non-point) have been seen in the surroundings of Sub-project sites. All the thirteen sub-project sites are located in rural areas of Tehri and Pauri districts of Uttarakhand. Out of these 13 sites, physical infrastructure is planned only at ten sites. The major urban habitations close to from the sub-project sites in Tehri Garhwal district are Chamba and Tehri, whereas major habitations close to sub-project sites in Pauri Garhwal district are Kotdwar, and Lansdowne. It was observed that the traffic on the roads connecting to the site is too low, hence insignificant vehicular emissions is expected. There are no industrial establishments at sub-project area and surroundings. The ambient air quality and noise data for the sub-project is not available. To establish the baseline, ambient air quality monitoring was conducted at all 10 sites, where physical infrastructure is planned. The results of ambient air quality monitoring are presented in **Table-4** below: It is observed from the table that all air quality parameters are well within the national ambient air quality standards. The monitoring photographs are provided in **Annexure-5**.

**Table 4: Ambient Air Quality at Sub-project Sites**

Sl. No.	Location	District	Monitored Values od AAQ Parameters				
			PM <sub>2.5</sub>	PM <sub>10</sub>	NO <sub>x</sub>	SO <sub>2</sub>	CO
			µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>
01	Kanvashram	Pauri Garhwal	30.2	85.3	27.3	7.3	0.4
02	Kalalghati	Pauri Garhwal	28.9	73.0	28.5	9.1	0.2
03	Mavakot	Pauri Garhwal	44.6	91.3	23.2	8.9	0.5
04	Jaiharikhal	Pauri Garhwal	47.1	78.2	24.9	16.2	0.7
05	Sendikhal	Pauri Garhwal	32.7	75.3	26.4	15.6	0.5



Sl. No.	Location	District	Monitored Values of AAQ Parameters				
			PM <sub>2.5</sub>	PM <sub>10</sub>	NO <sub>x</sub>	SO <sub>2</sub>	CO
			µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	µg/m <sup>3</sup>	mg/m <sup>3</sup>
06	Kuthar	Pauri Garhwal	34.8	90.0	22.3	9.2	0.2
07	Gajana	Tehri Garhwal	35.3	76.8	18.4	8.7	0.3
08	Chopariyal	Tehri Garhwal	37.2	87.2	27.4	17.5	0.6
09	Tipri	Tehri Garhwal	36.5	79.0	19.7	11.2	0.4
10	Mukhem	Tehri Garhwal	32.8	72.3	17.4	10.6	0.2

PM<sub>10</sub> – Particulate matter, PM<sub>2.5</sub> – fine particulate matter, SO<sub>2</sub> – sulfur dioxide, NO<sub>x</sub> – oxides of nitrogen, CO- carbon monoxide

Source: Field Monitoring by DSC through NABL Accredited Laboratory

40. It was observed that ambient noise scenario in the study area is quite low in general. There are no industrial establishments in and around the sub-project sites. As the sub-project sites are located in rural and open areas noise from any commercial or vehicular activities is not anticipated. There are no published noise baseline data available for the sub-project sites. Due to this reason noise levels were monitored at all ten locations of sub-project sites where physical infrastructure is planned. The measured noise levels have been given below in **Table-5**. It is clear from this table that noise levels are well within the stipulated limits. The photographs of noise level measurements are given in **Annexure-5**.

**Table 5: Measured Noise Levels at Sub-project Sites**

Sl. No.	Name of Location	Category of Zones	Noise Levels (Leq dB(A))			
			LDay	LNight	LMin	LMax
01	Kanvashram	Residential	51.3	40.1	38.6	61.2
02	Kalalghati	Residential	50.2	41.0	39.3	60.0
03	Mavakot	Residential	49.4	42.2	39.9	60.2
04	Jaiharikhal	Residential	50.3	43.1	40.1	59.5
05	Sendikhal	Residential	50.8	41.2	39.4	57.0
06	Kuthar	Residential	50.1	40.8	39.2	55.9
07	Gajana	Residential	52.6	43.1	40.0	58.2
08	Chopariyal	Residential	51.8	40.7	39.6	60.2

Sl. No.	Name of Location	Category of Zones	Noise Levels (Leq dB(A))			
09	Tipri	Residential	52.3	44.1	40.1	63.0
10	Mukhem	Residential	51.0	40.6	39.6	57.2

Source: Field Monitoring by DSC through NABL Accredited Laboratory

41. **Climate:** The climate in Tehri district varies from cold temperate, tropical to sub-tropical. The northern and north western parts of the district experiences sub-zero temperature during the winter whereas the central and southern parts are comparatively warm and humid. In the southern part, at Narendranagar and west of New Tehri (e.g. Chamba, Dhanaulti and Surkanda Devi), the weather is very cold in winter and pleasant in summer. Snowfall is quite common during the winter in these areas. Other parts of the district experience dry, hot summer and cold winter.

42. The climate in Pauri Garhwal district is also similar to Tehri Garhwal district in hilly areas, but areas close to plains (near Kotdwara) experience from tropical to hot in summers. The sub-project locations at Kanvashram, Mavakot and Kalalghati are near Kotdwara and experiences hot weather. The other sites of sub-project are in hilly region and experience same climate as described in Tehri Garhwal case.

43. **Temperature:** The temperature exhibits seasonal variation with minimum during the winter and higher during the summer. April, May, June and July are the hottest months while January, February and December are the cold months. The maximum temperature rises to about 36°C and the minimum temperature falls to about -2°C. The **Table-6** below shows month wise weather in Tehri Garhwal. In order to show the temperature variation near the foot hills (for the sub-project sites at Kanvashram, Mavakot and Kalalghati) the temperature variation for Kotdwar is shown in **Table-7**.

**Table 6: Average maximum and minimum temperature of Tehri**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maximum °C	20	22	26	34	36	36	34	30	26	25	24	22
Minimum °C	-2	-1	11	20	23	24	24	25	22	16	10	0

**Source:** [http://www.uttarakhandinfo.com/Uttarakhand\\_Tourism/tehri\\_weather.php](http://www.uttarakhandinfo.com/Uttarakhand_Tourism/tehri_weather.php)

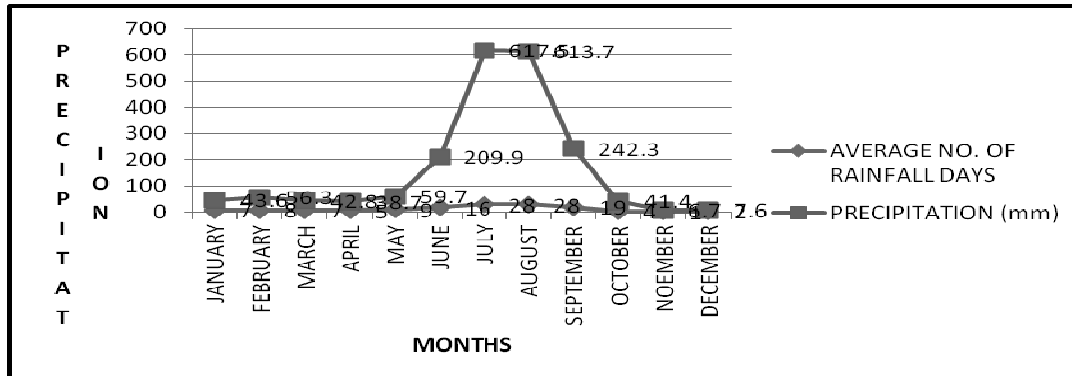
**Table 7: Average Monthly Temperature and Rainfall data for Kotdwara**

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
<b>Average high °C (°F)</b>	20 (68)	22 (72)	27 (81)	33 (91)	36 (97)	34 (93)	31 (88)	30 (86)	30 (86)	29 (84)	26 (79)	22 (72)	28.3 (83.1)
<b>Average low °C (°F)</b>	3 (37)	6 (43)	13 (55)	18 (64)	21 (70)	23 (73)	23 (73)	23 (73)	21 (70)	17 (63)	11 (52)	8 (46)	15.6 (59.9)
<b>Rainfall mm (inches)</b>	72 (2.83)	76 (2.99)	78 (3.07)	55 (2.17)	113 (4.45)	296 (11.65)	599 (23.58)	568 (22.36)	301 (11.85)	102 (4.02)	23 (0.91)	91 (3.58)	2,374 (93.46)

Source: Wikipedia 2013

44. **Rainfall:** The sub-project area experiences maximum rainfall during Monsoon season from May to September while the least rainfall is received in November and December. The monthly average rainfall (in millimeters) observed in last two decades is presented in Figure 6 for Tehri Garhwal sites and in **Table-7** for Pauri Garhwal sites.

**Figure 6: Average Rainfall Record of Tehri**



Source: Indian Meteorological Department

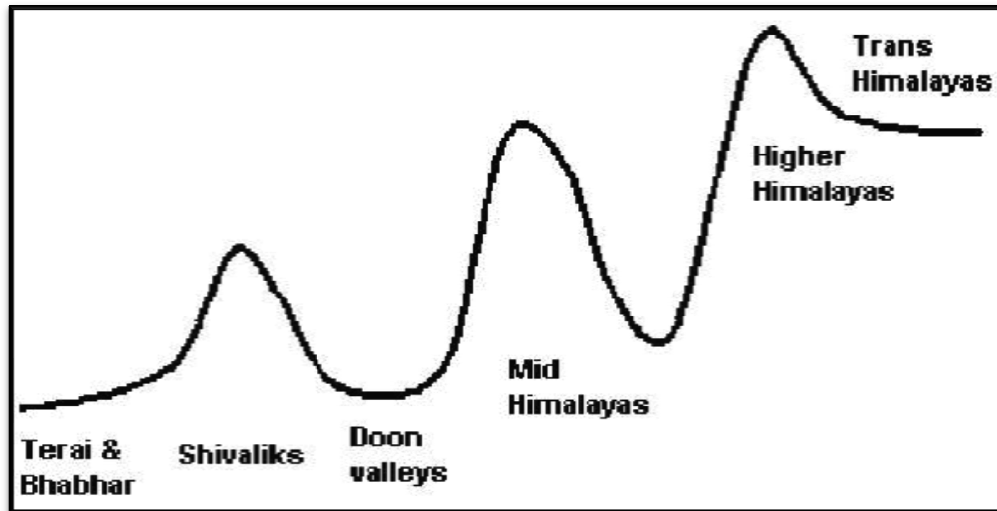
45. **Humidity:** Based on long-term climatological data of the sub-project region, it is found that Relative Humidity in sub-project area increases rapidly with the onset of monsoon and reaches maximum (about 90 %) during August, when peak monsoon period sets in. Relative Humidity is the minimum during the summer months (from April to June) with May being the driest month (about 47% in morning and 25% in evening). Skies are heavily clouded during the monsoon months and for short spells when the project region is affected by Western Disturbances. The dominant wind direction in the project region is from NE to SE in May to September months and SW to NE from October to May months. The average wind

speed is minimum (0.8 km/hr) in December and maximum in July (4.1 km/hr) whereas the average annual wind speed is 2.3 km/hr.

## **Topography and Soils**

### **(a) Tehri Garhwal District**

46. The Tehri Garhwal district comprises of two broad physiographic divisions viz. Central Himalayan Zone (north of the Main Central Thrust) exposed in the north eastern part and Lesser Himalayan Zone (south of the Main Central Thrust) in rest of the area. The physiography of the district is characterized by high mountain peaks, deep gorges and valleys. Major part of the area is inaccessible due to extremely rugged topography and dense forest cover.



47. The altitude of Tehri Garhwal district varies from 369 to 6672 m. The regional trend of major ridges is NNW-SSE, which is usually parallel to the strike of the country rocks. However, E-W, NW-SE and N-S trending ridges are also observed which are mainly structurally controlled.

48. The soils of Tehri Garhwal district can be broadly classified into two types, viz. soils of Central/Higher Himalaya and soils of Lesser Himalaya. The soils of Central Himalaya have been broadly classified under a) Soils of Summits, Ridge Tops and Mountain Glaciers, b) Soils of Side Slopes, c) Soils of Upper Glacio-Fluvial Valleys and d) Soils of Cliffs. Major part of the district is covered by soils of Lesser Himalaya, which may be broadly subdivided into three soil types. Soils of the first type are moderately shallow, excessively drained, and thermic, fine loamy, moderately eroded and slightly stony and are known as Dystric Eutrudepts. The second type, Lithic Udorthents, is characterized by very shallow, excessively drained, severely eroded and strongly stony, thermic loamy soils exposed on steep slopes with loamy and sandy surface. Typical Udorthents, the third major soil type, is

moderately shallow, excessively drained, moderately eroded and slightly stony, loamy soils on moderate slopes with loamy surface.

**(b) Pauri Garhwal District**

49. The topography of Pauri Garhwal district is by and large rugged and except for the narrow strip of Bhabar, the entire region is mountainous. The zone close to the hills is almost wholly comprised of boulders and conglomerates, and is highly permeable. This zone is called the *Bhabar*. The sub-project sites at Mavakot, Kalalghati and Kanvashram are located on Terai and Bhabar, on the foothills of the Shivalik Range of Himalayan Mountains. The other sub-project sites are located in hilly terrain of Shivalik range. The soils in the area of Pauri Garhwal district sub-project sites are alluvial, riverine, and non-calcareous to moderately calcareous soils, mixed with boulders, gravel and pebbles and have been carved out by the fast flowing rivers draining the Himalayas.

**Surface water and Ground water**

50. There is no major surface water source near the sub-project sites in Tehri Garhwal. The three sub-project sites in Pauri Garhwal district are located near the Malini River. These sites are Kanvashram (Malini River adjacent to site), Kalalghati (Malini River at about 1.2 km from site) and Mavakot (Malini River at about 1.3 km from site). This river is local and tributary of Ganga River. The water samples of this river have been analyzed at all three locations to establish the baseline water quality of this river. This will help in ascertaining any contamination in River water quality due to project related activities during the project life cycle. The water quality data of this River has been given in **Table-8**. The photographs of water sample collection have been given in **Annexure-5**.

**Table-8: Water Quality of Malini River**

Sl. No	Parameters	Unit	Malini River Water Quality		
			Near Kanvashram Site (SW-1)	Near Kalalghati Site (SW-2)	Near Mavakot Site (SW-3)
01	pH	-	7.8	7.2	7.6
02	Dissolved Oxygen (DO)	mg/l	6.0	6.0	6.0
03	B.O.D. 3 days at 27 degree	mg/l	<1	<1	<1
04	C.O.D.	mg/l	<5	<5	<5
05	Electrical Conductivity	µs/cm	393	363	340
06	Ammonia	g/l	<10	<10	<10
07	Coliform	cfu/100ml	Absent	Absent	Absent

Source: Field Monitoring by DSC through NABL Accredited Laboratory

51. It is clear from the above results that Malini River water quality meets the criteria specified for Category 'A'. This means River water is suitable without conventional treatment.

52. The ground water quality data is not available for the sub-project sites and surroundings. There is no ground water extraction at sub-project sites or surroundings. In order to establish baseline ground water samples were drawn from sub-project sites. The results of ground water quality are given in **Table-9** below: The photographs of ground water sample collection have been given in **Annexure-5**. There will be ground water requirement at Kanvashram site for augmentation of artificial lake water only. The augmentation of lake water through ground source will be only when there is no water availability in the existing canal flowing close to the site.

**Table-9: Ground Water quality at Sub-Project Sites**

Sl. No.	Parameter	Unit	Location									
			Rural Tourism Site									
			Kanvashram GW-1*	Kalalghati GW-2*	Mavakot GW-3*	Jaiharikhal GW-4*	Sendikhal GW-5*	Kuthar GW-6*	Gajana GW-7*	Chopariyal GW-8*	Tipri GW-9*	Mukherm GW-10*
01	Color	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
02	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
03	pH	-	7.18	7.08	7.08	7.30	7.76	7.28	7.72	7.14	7.12	6.62
04	Turbidity	NTU	<0.5	<0.5	<0.5	2.8	0.58	1.4	3.0	<0.5	2.8	3.4
05	Total Dissolved Solids	mg/l	176	214	160	248	278	138	376	254	188	132
06	Phenolic Compound	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
07	Aluminum (as Al)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
08	Ammonia (as N)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
09	Nitrate (as NO <sub>3</sub> )	mg/l	<0.5	<0.5	<0.5	1.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
10	Total phosphate (as PO <sub>4</sub> )	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
11	Anionic Detergent (as MBAS)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
12	Barium (as Ba)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
13	Boron (as B)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

*Infrastructure Development Investment Program for Tourism, Uttarakhand (IDIPT: Tranche III)*  
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Sl. No.	Parameter	Unit	Location									
			Rural Tourism Site									
			Kanvashram GW-1*	Kalalgha ti GW-2*	Mavakot GW-3*	Jaiharikh al GW-4*	Sendikh al GW-5*	Kuthar GW-6*	Gajana GW-7*	Chopariy al GW-8*	Tipri GW-9*	Mukhe m GW-10*
14	Calcium (as Ca)	mg/l	25.6	32.0	24.0	24.0	16.0	16.0	57.6	35.2	19.2	16.0
15	Chloride (as Cl)	mg/l	14.0	10.0	12.0	50.0	20.0	24.0	20.0	18.0	28.0	20.0
16	Fluoride (as F)	mg/l	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
17	Sulphate (as SO <sub>4</sub> )	mg/l	8.0	4.0	<1.0	12.0	6.0	10.0	8.0	8.0	10.0	6.0
18	Total Alkalinity	mg/l	72.0	180	140	120	216	60.0	320	208	84.0	56.0
19	Total Hardness	mg/l	140	176	132	128	92.0	100	304	192	116	96.0
20	Magnesium (as Mg)	mg/l	18.46	23.32	17.49	16.52	12.63	14.58	39.0	25.3	16.5	13.6
21	Manganese (as Mn)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
22	Iron (as Fe)	mg/l	<0.1	<0.1	<0.1	0.12	<0.1	<0.1	0.14	<0.1	<0.1	0.16
23	Copper (as Cu)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
24	Chromium (as Cr)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
25	Cadmium (as Cd)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
26	Nickel (as Ni)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
27	Zinc (as Zn)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
28	Lead (as Pb)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND



*Infrastructure Development Investment Program for Tourism, Uttarakhand (IDIPT: Tranche III)*  
*Initial Environmental Examination*  
*Development of Rural Tourism Infrastructure in Pauri and Tehri District*

Sl. No.	Parameter	Unit	Location									
			Rural Tourism Site									
			Kanvashram GW-1*	Kalalgha ti GW-2*	Mavakot GW-3*	Jaiharikh al GW-4*	Sendikh al GW-5*	Kuthar GW-6*	Gajana GW-7*	Chopariyal GW-8*	Tipri GW-9*	Mukhe m GW-10*
29	Arsenic (as As)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
30	Mercury (as Hg)	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
31	Coliform	mpn/100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
Note : *= Water Sample from Hand Pump ; §=Water sample from Borewell ND= not detectable												

**Source: Field Monitoring by DSC through NABL Accredited Laboratory**

53. It is clear from the water quality results that all water quality parameters are well within the limits stipulated for Drinking Water in IS -10500:2012.

### **Geology / Seismology**

54. The Himalayan belt is visualized as compressive plate boundary zone between the Eurasian plate on the north and the Indian plate to the south. The plate convergence between the formerly separated continental masses (the plates), resulted into complete demolition of the Tethys ocean basin, which was intervening between the two plates till the Mid-Miocene. The collision of the two plates gave birth to the Himalayan orogeny. The Himalayan general strike is WNW-EWE, measuring about 2400 km long and average width about 270 km. Uttarakhand Himalaya occurring in the central part of the Himalayan folded belt has exposed rock types varying in age from Proterozoic to Late tertiary period, disposed in four major tectonic belts designated as the Foothill Siwalik belt, Lesser Himalayan belt, Central Crystalline and Tethyan belt.

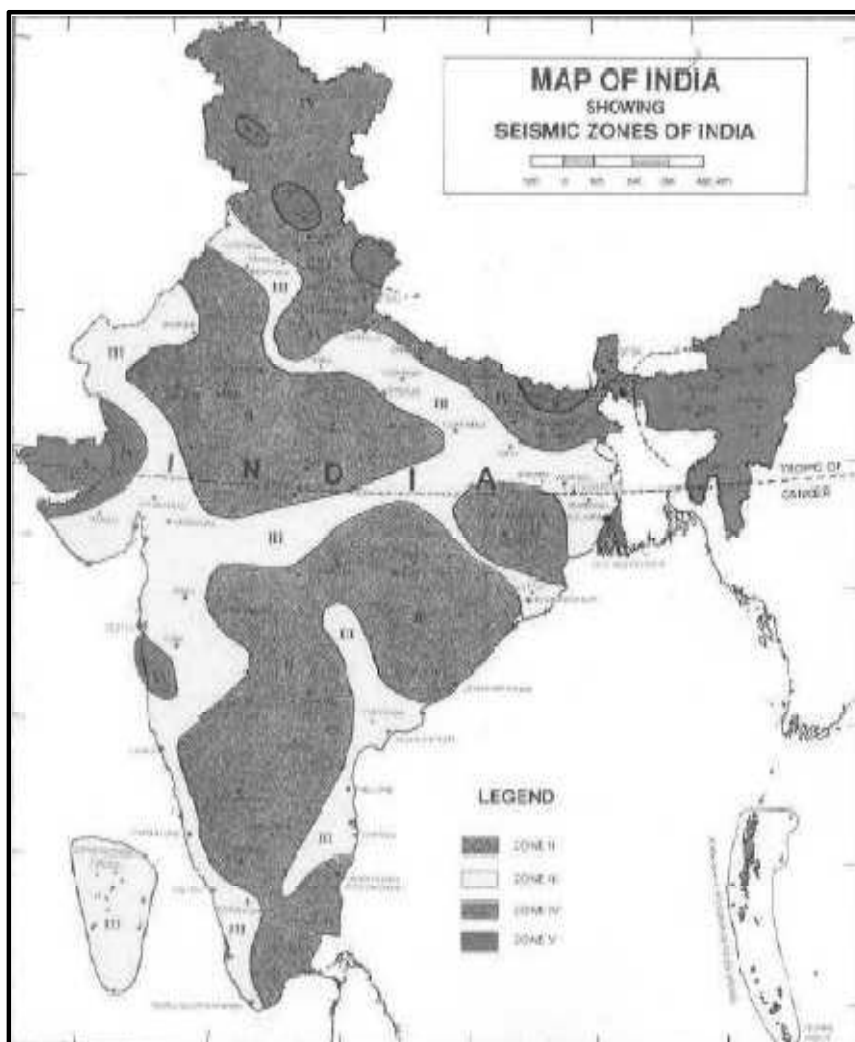
55. The Himalayan tract of the Kumaon-Garhwal region exposes wide variety of rocks, ranging in age from Himalayan Pre-Cambrian to Quaternary. The Himalayan tract between the Bhagirathi and Alaknanda valleys in Garhwal is occupied by schists, schistose phyllites, granulites, migmatites, and the likes dipping north easterly with a scarp facing the Gangetic plain and intruded by gneissose granite, pegmatite. These rocks rest upon metamorphosed shales, phyllites, limestones, quartzites, etc. from where these are separated by thrust.

56. The main tectonic elements of the region include the central thrust, and boundary fault. Several NE-SW lineaments are also known from the area and this traverse across different tectonic zones. Seismically, the State constitutes one of the most active domains of the Himalayan region. Several damaging earthquakes are recorded from this region.

57. The seismic code in India divides the country into five seismic zones (I to V). Both the districts fall in zone IV. The sub-project sites in both districts come under seismic zone IV as defined by Urban Earthquake Vulnerability Project (UEVP) and the Atlas prepared by the Building Materials Promotion and Technology Council (BMTPC), Government of India and UNDP [IS 1893 (Part I : 2002)]. All structures will be designed considering seismic zone IV.

**Figure 7** shows seismic zonation map of India.

**Figure 7: Seismic Zones of India**



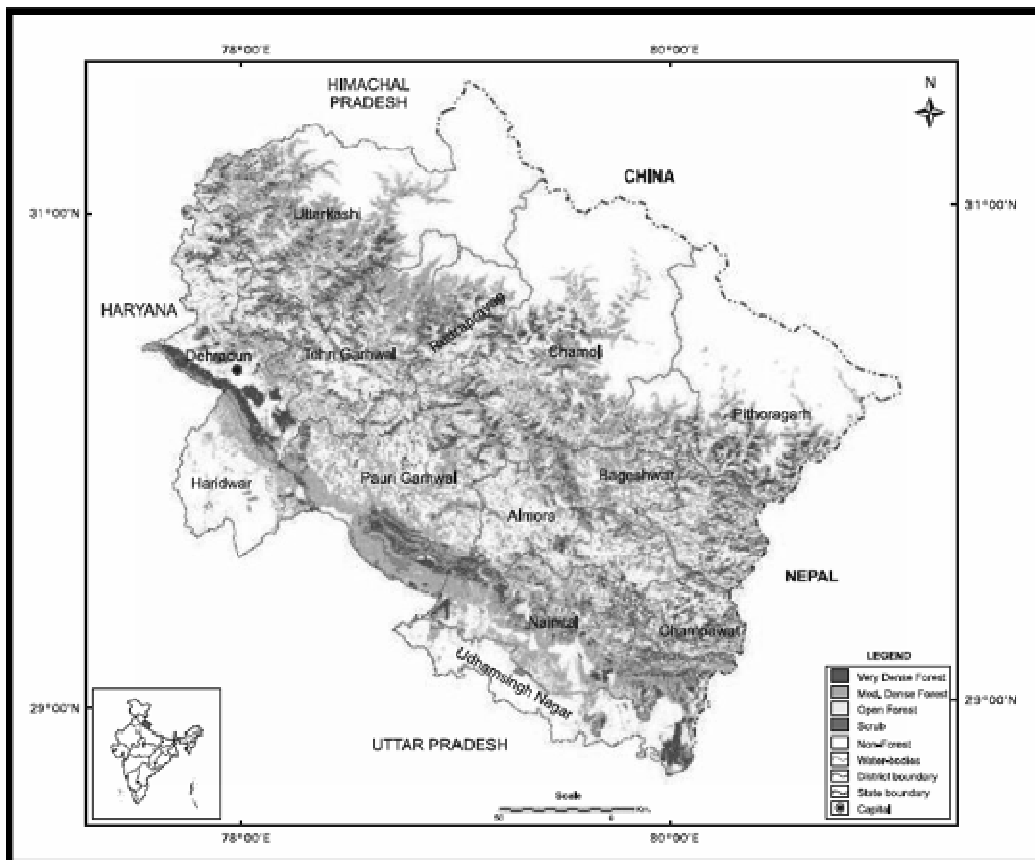
## **2. Ecological Resources**

### **Forests**

58. Uttarakhand has 3.47 million hectares (about 64.79 % of its geographic area) of forests (FSI, 2011) and most of it is managed by the Forest Department. The variation in the landscape has created great diversity of flora and fauna. From the snowbound peaks of the Himalayas to the moist Alpine scrub, sub Alpine forests, dry - temperate and moist-temperate forests to moist deciduous forests, the state possesses a wide biodiversity that in return nurtures a large multiplicity of floral and faunal forms. Reserve Forests constitute 71.11%, Protected Forests 28.52% and Un-classed forests constitute 0.35% of the total forest area. Tehri district has about 66.23 % of its geographic area under forests and most of it is managed by the Forest Department. The forests of the district can be classified into six main categories namely: (1) the tropical dry deciduous forests, (2) the sal forests (3) the chir

forests, (4) the oak forests, (4) the deodar, fir and spruce forests, and (5) the Alpine pastures. Forest cover map is shown in **Figure 8**.

**Figure 8: Forest cover Map of Uttarakhand**



Source: India State of Forest Report, 2011

59. Out of 13 sub-project sites, only one site at Kanvashram is located in reserved forest area. All other sites are outside forest areas and within the existing villages. The Sendhikhal village is the nearest village to the Jim Corbett National Park. The minimum distance of this village from the core zone of National Park is about 11 km. The distance of Sendhikhal village from Buffer zone boundary of Corbett National Park is about 1.1 km. The list of major flora in the reserved forest area around Kanvashram site is given below in **Table-10**. The list of major flora around other sub- project sites in Tehri Garhwal and Pauri Garhwal districts is presented below in **Table-11**.

60. The list of major fauna in the surroundings of sub-projects is given in **Table-12**. It may be mentioned that this list of fauna is general based on secondary data and local consultations.

**Table-10: List of Major Flora in Reserved Forest Area near Kanvashram Site**

Sl. No.	Scientific Name	Common Name
1	Melotus Philipensis	<i>Rohini</i>
2	Holoptolia Integrifolia	<i>Kanju</i>
3	Cassia Fistula	<i>Amaltas</i>
4	Misc. Species	<i>Kusum (Schleicheria oleosa)</i>
5	Adena Cardifolia	<i>Haldu</i>
6	Acacia Catechu	<i>Khair</i>
7	Shal	<i>Shorea robusta</i>
8	Syzigium Cumini	<i>Jamun</i>
9	Padam	<i>Prunus cornuta</i>
<b>Shrubs</b>		
1	Kala Hisalu	<i>Rubus lasiocarpus</i>
2	Dudhia	<i>Taraxacum officinale</i>
3	Karoz	<i>Carissa spinarium</i>
4	Vatula	<i>Flemingia fruticulose</i>
<b>Grasses</b>		
1	Dub	<i>Cynodon dactylon</i>
2	Kush	<i>Sucharum spontanour</i>
3	Tachita	<i>Apluda muticr</i>
4	Jhugra ringal	<i>Arundinaria jaunsarensis</i>

**Table-11: List of Major Flora around Sub- Project Sites**

Sl. No.	Scientific Name	Common Name
1	Buransh	<i>Rhododendron arboretum</i>
2	Deodar	<i>Cedrus polycarpus</i>
3	Chir	<i>Pinus roxburghii</i>
4	Surai	<i>Cupressus tourulose</i>
5	Adena Cardifolia	<i>Haldu</i>
6	Acacia Catechu	<i>Khair</i>
7	Shal	<i>Shorea robusta</i>
8	Syzigium Cumini	<i>Jamun</i>
9	Padam	<i>Prunus cornuta</i>
10	Kharik	<i>Celtis eriocarpa</i>
11	Chamkhirik	<i>Carpinus viminea</i>
12	Katmon	<i>Betula alnoides</i>

Sl. No.	Scientific Name	Common Name
<b>Shrubs</b>		
1	Kala Hisalu	<i>Rubus lasiocarpus</i>
2	Dudhia	<i>Taraxacum officinale</i>
3	Karoz	<i>Carissa spinarium</i>
4	Vatula	<i>Flemingia fruticulose</i>
5	Jatamasi	<i>Nardostachys grandiflora</i>
6	Jula	<i>Gerbera grassypina</i>
7	Satavar	<i>Asparagus racemosus</i>
8	Banfasa	<i>Viola surpans</i>
<b>Grasses</b>		
1	Dub	<i>Cynodon dactylon</i>
2	Kush	<i>Sucharum spontanour</i>
3	Tachita	<i>Apluda muticr</i>
4	Jhugra ringal	<i>Arundinaria jaunsarensis</i>

**Table-12: List of Major Fauna Prevailing in Sub-Project Region**

Sl. No.	Wild Animals	
	Local Name	Scientific Name
1	Kala Bhalu	<i>Selenarctos thibetanus</i>
2	Jangli Suar	<i>Sus-scrofa cristatus</i>
3	Jangli Billi	<i>Felis chaus</i>
4	Gilehri	<i>Eurambulus pennanti</i>
5	Bandar	<i>Macaques mulatta</i>
6	Guldar	<i>Panthera Pardus</i>
7	Kakar	<i>Muntiacus muntjak</i>
8	Ghural	<i>Memorhaedus goral</i>
9	Khirao	<i>Capricornis sumatraensis</i>
10	Chitrola	<i>Martes flarigula</i>
11	Langoor	<i>Presbyits entellus</i>
12	Jangli Billi	<i>Felis chaus</i>
13	Khargosh	<i>Lepus nigricollis</i>
<b>Birds</b>		
1	Chir Fijent	<i>Fijent Catreus wallichii</i>
2	Kalij Fijent	<i>Lophura Leucomelana</i>
3	Koklaj Fijent	<i>Pucrassia macrolophus</i>
4	Kala Irgal	<i>Letinaetus makavensis</i>
5	Karorla	<i>Urocissa erythrorhyncha</i>

Sl. No.	Wild Animals	
	Local Name	Scientific Name
6	Ullu	<i>Strix aluco nivicola</i>
7	Baaj	<i>Flaco severaus</i>
8	Kala Titar	Kala Titar
9	Papiha	<i>Cuculus varius</i>
10	Tota	<i>Psittacula humalayana</i>
11	Chakor	<i>Alectoris graeca chuker</i>
12	Hariyal	<i>Treron spenura</i>
13	Pashchimi Tregopan	<i>Tragopan meloccephalus</i>
14	Bulbul	<i>Pyconotus cafer</i>
15	Maina	<i>Aeriotheres tristis</i>
16	Fakhta	<i>Streptobelia orientalis meena</i>
17	Gidh	<i>Gyps himalayensis</i>
18	Kauwa	<i>Carvus macrorhynchos</i>
19	Neelkanth	<i>Garrulus Lanacclatus</i>

Source: Local Forest Office at Kotdwara and Inquiry with Locals

61. 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.

62. 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. There are no protected areas within 10 km distance of sub-project sites. The nearest protected area is Jim Corbett National Park at a distance of about 21 km from Kanvashram site and 12 km from Sendhikhal site.

63. The water bodies of Tehri Garhwal and Pauri Garhwal Districts are rich in aquatic fauna. Various species of Zooplanktons, Phytoplankton, Macro-invertebrates, Macrophytes, (submerged, rooted emergent and free floating) and amphibians are found in these water bodies.

64. The fish species found in the waters of river are Mahasheer and Goonch. Angling is carried out on some tributaries of Ganga like Bhagirathi, Bhilangana, and Alaknanda.

## Protected Areas

65. The State of Uttarakhand is represented by Biogeographic Zones 2B Western Himalaya and 7B Shivaliks. 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 PAs (National Parks and Wildlife Sanctuaries) in the State is given in **Table 13**.

66. The Jim Corbett National Park is closest national park from the sub-project site in Pauri district. This park covers 520 sq kms of Savannah-type grasslands and Sal forests. Declared as a Tiger Reserve in 1973, the Park has a rich diversity including the White Tiger, Throated Martem, Himalayan Palm Civet, Indian Grey Mongoose, Para, Kakka, Ghoral, Bar-headed Goose, Duck, Grepe, Snipe, Turtles, Python, Common Otter, Porcupine, Clack-taped Hare, Chital, Spotted Deer, Viper, Cobra, Krait, King Cobra, Tortoise, Graylag, Sandpiper, Gull, Cormorants and Egrets. There are 488 species of flora found protected in the Park including Sal, Savannah Grass, Anogeissus-Acacia catechu forests, Mallotus philippensis, Jamun and Diospyros tomentosa.

**Table 13: 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	Mussoorie WLS	1993	11	Dehradun

Source: Wildlife and Protected Areas, ENVIS, 2002

67. Tourism is one of the strong pillars of the State economy. The State has high growth potential for tourism, be in nature, wildlife, adventure or pilgrimage tourism. The State



received 2,05,46, 323 domestic tourists in the year 2008, 2,19,34, 567 in the year 2009 and 3,02,06, 030 in the year 2010. As per Uttarakhand at a Glance 2012-13 a document issued by Directorate of Economic and Statistics GOUK state received 5,69,250 tourists in the year 2011-2012 registering a considerable yearly growth. Expenditure on schemes for tourism development and promotion in the State has progressively increased over the years. Some of the major destinations with tourism potential include Haridwar (called 'The Gateway of God'), Rishikesh (the birth place of Yoga), Dehradun, Mussoorie, Almora, Kedarnath, Badrinath, Yamunotri, Gangotri, Jim Corbett National Park, Nainital, Ranikhet, and Pithoragarh. The tourist arrival in National Parks and revenue receipts are given in **Table-14**.

**Table 14: Tourist Arrival & Revenue Receipts of Important Protected Areas of Uttarakhand (April 2011–March 2012)**

<b>Protected Area</b>	<b>Area (km<sup>2</sup>)</b>	<b>Indian</b>	<b>Foreigner</b>	<b>Total</b>	<b>Revenue (Rs. In Lakhs)</b>
Corbett NP	520.84	202528	7734	210262	719.38
Rajaji NP	820.42	19268	1793	21061	52.42
Gangotri NP	2390.00	13675	1692	15367	38.15
Valley of Flowers NP	87.00	6328	527	6855	11.39
Nanda Devi NP	630.00	55	8	63	0.13
Govind NP/WLS	472.08	2172	125	2297	4.88
Binsar WLS	45.59	17343	432	17775	37.57
Sonanadi WLS	301.76	16323	788	17111	29.41
Kedarnath WLS	957.00	701	102	803	1.31
<b>Total</b>		278393	13201	291594	894.64

Source: Uttarakhand Tourism Development Board

### **3. Economic Resources**

#### **Industries**

68. The State has very few industrial units mainly because of lack of resources. In recent years, the government is encouraging private participation in all industrial activities in the State. The New Industrial Policy announced in 2003 indicates that private resources may be tapped while promoting integrated industrial estates in Uttarakhand. The State government provides assistance in establishing small and medium sized agro parks, food parks, and the likes which in turn are expected to provide common infrastructure facilities for storage, processing, grading, and marketing.

69. There are some industrial units at foothills of Pauri Garhwal district at Kotdwar. It has very few industries as industrial development here is still in its infancy stage. Some of the companies having their manufacturing units here are Wipro Technologies and Bharat Electronics Ltd (BEL) at Kotdwar is developing as an industrial town due to its accessibility from other industrial cities via railway and road transport. An industrial area Sigaddi Growth Center (SIDCUL) is in developing stage in Kotdwar.

70. Tehri has very few industries as industrial development here is still in its infancy stage. There is no large scale Industry or Public Sector undertakings in entire Tehri district. Micro and small enterprises and artisan units exist in the District the details of which are given in the **Table-15** for Tehri district and **Table-16** for Pauri district below:

**Table 15: Details of Existing Micro and Small Enterprises and Artisan Units in Tehri District**

NIC Code No	Type of Industry	Number of Units	Investment (Lakh Rs.)	Employment
20	Agro based	703	114.08	1925
22	Soda water	-	-	-
23	Cotton textile	-	-	-
24	Woolen, silk & artificial Thread based clothes.	28	45.60	84
25.	Jute & jute based	-	-	-
26.	Ready-made garments & embroidery	1883	282.29	3984
27.	Wood/wooden based furniture	323	107.10	969
28.	Paper & Paper products	07	112.10	89
29.	Leather based	09	118.05	27
31.	Chemical/Chemical based	14	122.05	44
30.	Rubber, Plastic & petro based	07	102.40	27
32.	Mineral based	09	65.00	35
33.	Metal based (Steel Fab.)	05	131.01	29
35.	Engineering units	217	98.03	651
36.	Electrical machinery and transport equipment	-	-	-
97.	Repairing & servicing	352	4389.01	1156
01.	Others	962	1921.70	3373
	-	-	-	-

Source: DIC Narendra Nagar (Tehri)

**Table 16: Details of Existing Micro and Small Enterprises and Artisan Units in Pauri District**

NIC Code No	Type of Industry	Number of Units	Investment (Lakh Rs.)	Employment
20	Agro based	497	1209	903
22	Soda water	-	-	-
23	Cotton textile	20	6.27	40
24	Woolen, silk & artificial Thread based clothes.	-	-	-
25.	Jute & jute based	-	-	-
26.	Ready-made garments & embroidery	633	503.93	1267
27.	Wood/wooden based furniture	703	204.24	4989
28.	Paper & Paper products	17	30.19	68
29.	Leather based	-	-	-
31.	Chemical/Chemical based	01	34	05
30.	Rubber, Plastic & petro based	-	-	-
32.	Mineral based	03	3.00	37
33.	Metal based (Steel Fab.)	307	3107.13	1263
35.	Engineering units	227	60.12	681
36.	Electrical machinery and transport equipment	309	45.37	709
97.	Repairing & servicing	603	37.23	1304
01.	Others	1820	8992.73	2679
	Total	5119	14233.5145	14045

Source: MSME Development Institute, Haldwani

### **Infrastructural Facilities**

71. In 2006 the Ministry of Panchayati Raj named Tehri Garhwal one of the country's 250 most backward districts (out of a total of 640). It is one of the three districts in Uttarakhand currently receiving funds from the Backward Regions Grant Fund Program (BRGF). Tehri Garhwal is one of the largest districts in the hill state of Uttarakhand, India. Its administrative headquarters is at New Tehri. The district has a population of 618,931 (20011 census), a 1.93% increase over the previous decade. It is surrounded by Rudraprayag District in the east, Dehradun District in the west, Uttarkashi District in the north, and Pauri Garhwal District in the south. New Tehri town generates about 1.75 quintals of solid waste which is disposed in dumping site managed by New Tehri Nagar Palika. Jal Sanasthan Nigam, New Tehri, Uttarakhand provide water to the area. However there is a need to improve the facilities and reach. A sewerage system and a treatment plant are existing in New Tehri.

72. Pauri Garhwal district has better infrastructure facilities owing to its position with plains and connectivity by train up to Kotdwar.

### **Transportation**

73. Tehri Garhwal and Pauri Garhwal districts are connected with Uttarakhand and rest of India through road network. Since sub-project sites are connected to NH by local roads, therefore, these are also well connected by air transportation and railway line with entire country. Nearest Airport is Jolly Grant for all sub-project sites. The nearest station is Rishikesh for sub-project sites in Tehri Garhwal district and Kotdwar for all sub-project sites in Pauri Garhwal district.

### **Land use**

74. The salient land use features of Tehri Garhwal district and Pauri Garhwal districts are given below in **Table-17** and **Table-18** respectively:

**Table 17: Land use pattern of Tehri Garhwal**

<b>Land use</b>	<b>Area (In hectare)</b>
Forest Area	322051 ha
Land under Cultivation	88461 ha
Cultivable Barren Land	5681 ha
Total Fallow Land	15707 ha
Barren and Non-cultivable Land	5844 ha
Land under Non-agricultural Use	78366 ha
Pasture and Other Grazing Land	539 ha
Land under Gardens, Bushes, Groves etc.	1372

**Table 18: Land use pattern of Pauri Garhwal District**

<b>Land use</b>	<b>Area (In hectare)</b>
Forest	443977
Non Agricultural	35584
Barren Uncultivated	46127
With Permanent Pasture	18692
Misc. Tree Crops	18182
Fallow Land	44998
Net Sown	80817
Sown More Than Once	44490
Gross Cropped	125307
Net Irrigated Area	14837

Land use	Area (In hectare)
Gross Irrigated Area	7667
Total Area	752364

*Source: District Statistical handbook year 2003, Pauri Garhwal*

75. A study of the figure reveals that major portion of both districts is under forest cover followed by land under cultivation or cropped 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 about 5%, which indicate that apart from the forest cover, remaining areas are primarily utilized for agricultural use.

76. Out of 13 sub-project sites, Kanvashram site is in reserved area. .

77. **Agricultural Development:** Agriculture is the main occupation of the people. However, intensive cultivation is not possible as major part of both the districts 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 both the districts. Wheat is the major crop grown in both districts followed by sawan, mandua and rice. Apart from this, other important crops sown in the district are barley, maize and urad dal.

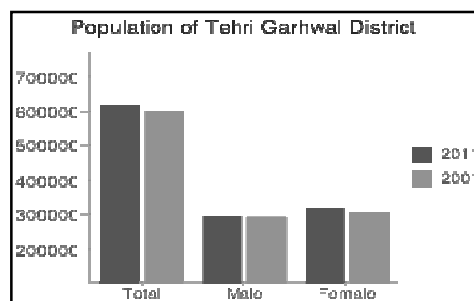
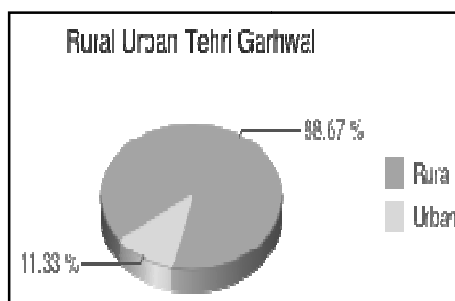
#### **Power source**

78. Uttarakhand has an estimated hydro power potential of 20,200 MW. However, only 1,130 MW has been tapped at present. Meanwhile, 4,170 MW projects are under implementation and 3,800 MW projects are allotted to Central, State, and private sectors.

## **4. Social and Cultural Resources**

### **Population and Communities**

79. In 2011, Tehri Garhwal had population of 618,931 of which male and female were 297,986 and 320,945 respectively.



80. Garhwal Himalaya has its own distinguished historical traditions and religious importance due to its geographical significance, cultural heritage and social background.

Tehri Garhwal resembles other parts of the Himalayas where various ethnic groups live side by side. Following chiefly the agrarian-pastoral way of life, native Garhwalis make their living from the hilly land the best they can. Some, like the Bhotia traders, migrate far and wide, although the ancient trade routes with Tibet have been closed since 1950. Most of the indigenous people like Jaunsari, Buksha, and Tharu, and Raji are heterodox Hindus and Buddhists, while Sikh migrants from West Punjab have settled in the lowlands since 1947. A few Muslim groups are also native to the area, although most of them have settled recently. The Muslim Gujjar herders also migrate to the hills.

81. According to the 2011 census Pauri Garhwal district has a population of 697,078, the district has a population density of 129 inhabitants per square kilometer (330 /sq mi). Its population growth rate over the decade 2001-2011 was -1.51%. Pauri Garhwal has a sex ratio of 1103 females for every 1000 males and a literacy rate of 82.59%.

82. As of 2001 Indian census, the Pauri Garhwal district had a population of 697,078. Hindus 673,471, Muslims 20,157 (2.89%), Christians 1,915.

#### **Health facilities**

83. At Tehri Garhwal district, there are 35 allopathic hospitals with bed capacity of 468, besides 70 Ayurvedic Hospitals. 30 PHC's exist in the district which is also aided with 5 Community Health centers. There are 18 and 204 Mother & Child Welfare centers & Mother and Child Welfare Sub centers respectively in the District. Few private hospitals are also available in the District.

84. At Pauri Garhwal district head quarter, there is one district hospital, one women hospital, one T.B. clinic, and one leprosy clinic. There is a joint hospital at Kotdwar and a base hospital at Srinagar. In these hospitals all-important medical facilities such as Radiology, Pathology, Child Care, Orthopedics, Anesthesia, Surgery etc. are available. Besides these, there are 31 primary health centers, 59 Ayurvedic hospitals/dispensaries, 91 allopathic hospitals/dispensaries, 9 homeopathic hospitals/ dispensaries, 239 family welfare & child care center/sub-centers.

#### **Education facilities**

85. In the Tehri Garhwal district, there are 1474 primary schools, 410 middle schools, 185 secondary and senior secondary schools, 10 colleges, 14 technical institutions to provide quality education.

86. Pauri, Kotdwar, Lansdowne and Srinagar are major centers of education in the Pauri Garhwal district. Hemvati Nandan Bahugana Garhwal University (A central university of India) is in Srinagar. Govind Ballabh Pant Engineering College at Ghurdauri (12 km from

Pauri) is a technical institution present in the district. Veer Chandra Garhwali Government Medical College is in Srinagar. In addition to this there are primary and secondary schools in small towns of the district.

### **Social and Cultural Heritage**

87. Various customs and traditions of the region are based on the Hindu religion. “Shiva” is most widely regarded and “Durga” in different forms is also worshipped throughout the area. Most of the fairs and festivals in the region are associated with the worship of the above. Religious faiths and superstitions are deep rooted amongst the people. Individual function on a new birth, marriage, death, etc., is governed by ancient customs and traditions. For everything, people depend heavily on the astrological forecast of the Brahmins for its auspiciousness.

88. The sub-project sites and surroundings have no notified cultural heritage sites.

### **Archaeological Resources**

89. There are no heritage sites notified by Archaeological Survey of India (ASI) within the sub-project 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 Sub-project.

## **IV. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

### **1. Environmental Impacts**

90. The development projects like tourism infrastructure creating 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 sub-project namely "Development of Rural Tourism" has been carried out for potential impacts during the following stages of the project planning and implementation.

91. **Impacts:** The project related impacts occur during pre construction and design phase, construction phase and operation phase. The impacts will also be due to selection of locations for the sub-project related interventions.

- (i) **Location Impacts:** The location impacts are on account of site selection for the project related intervention. The location related impacts include, land acquisition, resettlement or livelihood related impacts on communities and impacts on trees and vegetation.
- (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 sub-project.

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.

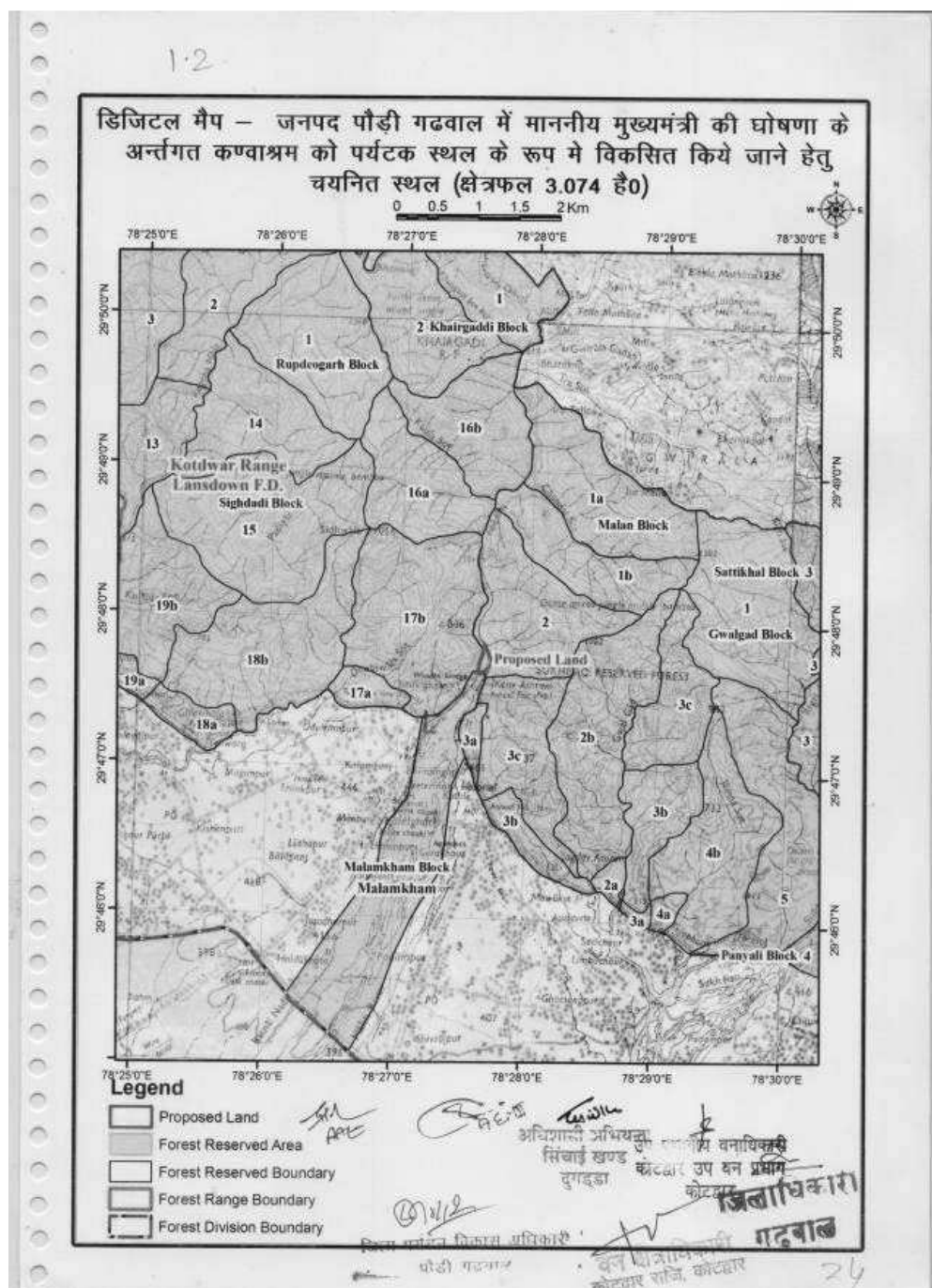
### **Location Impacts**

92. The Sub-project sites are in rural areas of Uttarakhand and these are in use of community and proposed for up gradation for effective use and to minimize environmental degradation. The improvements are planned within the available land. There are no significant ecological resources near the sub-project sites (protected areas or rare or important species or habitats) except 36 trees (as given in table 19) at Kanvashram site.



However, none of the trees to be cut at Kanvashram site is rare or endangered. The tree cutting permission for the above mentioned trees has been obtained from the Forest Department as part of Forest Land Diversion proposal clearance. . This Kanvashram site is located in Reserved Forest area. The department of tourism has obtained forest clearance after submission of forest land diversion proposal under the 'Forest (Conservation) Act', 1980. The total reserved forest area diverted is 3.074 ha. The location of the forest area is shown on Survey of India Toposheet in **Figure-9** below:

**Figure 9: Location of Kanvashram site showing forest are on Survey of India Toposheet**



93. There are no heritage sites notified by Archaeological Survey of India (ASI) near the sub-project sites and surroundings. No significant impacts can arise due to project location as the 12 sites out of 13 are in rural areas and away from any cultural / historical areas.

94. The only location impact is that all sub-project sites are located in earthquake zone IV and even a small magnitude earthquake may damage infrastructure especially at Kanvashram site. The land for development at all sites is in possession of Government of Uttarakhand as these are planned on Government owned land under possession of village Panchayat. The NOCs from the respective village Panchayats have been obtained by PIU for all villages (**Annexure-6**). Hence, no impacts are envisaged on land acquisition or resettlement due to the proposed sub-project components.

#### **Impacts during Design and Pre-Construction Phase**

95. Impacts arising from the inappropriate designs of proposed facilities would in general include the inadequate facilities and infrastructure at sub-project sites specially related to sanitation, solid waste collection and safe access. This will result into inconvenience to the visitors and tourists. There may be impacts on surrounding land if proper sanitation waste water collection and treatment is not planned. The project intervention will help in addressing inadequate amenities and safe access to the sub-project sites.

96. 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 entire sub-project sites land is in possession of Government of Uttarakhand, there is no land acquisition and no impact on private properties. There are no involuntary resettlement issues also in the sub-project. Tree cutting is needed at Kanvashram site only. There is no requirement of trees at any of the village identified for rural tourism. The details of trees to be cut is given below in **Table-19** below:

**Table-19: Details of Trees to be cut at Kanvashram Sub-project site**

Sl. No.	Scientific Name	Local Name	Girth Size ( cm)					Total
			31-60	61-90	91-120	121-150	>150	
1	Melotus Philipensis	Rohini	4	1	-	-	-	5
2	Holoptolia Integrifolia	Kanju	2	2	-	-	2	6
3	Cassia Fistula	Amaltas	6	4	2	1	-	13
4	Misc. Species	Kusum (Schleicheria oleosa)	-	1	-	1	1	3
5	Adena Cardifolia	Haldu	6	-	-	-	-	6

Sl. No.	Scientific Name	Local Name	Girth Size ( cm)					Total
			31-60	61-90	91-120	121-150	>150	
6	Acacia Catechu	Khair	-	-	-	-	2	2
7	Syzigium Cumini	Jamun	1	-	-	-	-	1
<b>Total</b>			19	8	2	2	5	36

*Source: Consultants' Field Survey*

97. In addition to above mentioned trees there will be removal of shrubs from the locations of planned facilities. None of the trees to be cut at Kanvashram site is rare or endangered. The tree cutting permission for the above mentioned trees has been obtained from the Forest Department as part of Forest Land Diversion proposal clearance.

98. During pre-construction stage there will be impact on account of establishment of construction camps if this is established outside sub-project site land. It is anticipated that there will be need to establish construction camps at Kanvashram, Chopariyal (Tehri), Mavakot (Pauri) and Kuthar (Pauri) sites. At other locations works planned are small in nature and these are likely to be executed by the local manpower available.

99. Based on the environmental screening of the sub-project sites, there are no significant adverse environmental impacts during the design and Pre-construction phase.

### **Impacts during Construction Phase**

#### **Construction Methodology for Kanvashram Sub-Project Site**

100. The Kanvashram site is the biggest sub-project from the construction works point of view. In order to minimize environmental impacts during construction phase, a construction methodology has been prepared. This construction methodology will be followed. The construction methodology is given below:

101. **General** -The project envisages construction of a small artificial water body named as 'Lake' in the sub-project, an artificial island, a minor bridge of two meter width and all support infrastructure works such as multi facilities block, bore wells, garden benches, etc.. The construction methodology and equipment planning for various works is based on the site conditions prevailing and quantum of construction works.

102. All the pre-construction activities like land possession from forest department, tree cutting and site clearance will be completed before start of construction works. The approvals from statutory authorities (Forest Department) have been obtained. The process for obtaining NOCs from irrigation department for drawing water for the lake has already

been initiated. The permission for bore wells is not required as subproject site at Kanvashram does not fall under the non notified areas. As per Central Ground Water Authority (Government of India) Guidelines/Criteria for evaluation of proposals/requests for ground water abstraction permission is required for non notified areas and no ground water extraction permission is given for Notified areas. The Kanvashram sub-project site does not fall under either of the notified areas. In other words ground water abstraction at this site is not controlled by the Central Ground Water Authority.

### 103. **PRE CONSTRUCTION ACTIVITIES**

The activities proposed to be undertaken during Pre-construction work include the following:

- Detailed Topographical Survey and marking the Layout at site (Already completed)
- Pre- construction geotechnical investigation (Already completed)
- . Clearance from Government agencies ( forest clearance obtained)
- Acquisition of Land ( Forest land, subsequent to forest clearance, land transfer from forest department to tourism department under progress)
- . Detailed design and preparation of tender documents for Civil, and other works ( these will be done concurrently with construction. Drawings good for construction will be issued for each component by the DSC)
- Award of Contract (This activity is in progress)
- Setting up of Site office ( Contractor on mobilisation will establish office at site. DSC office is already in Kotdwara)
- Arranging of construction power (Contractor will arrange power for construction after mobilisation)
- Construction of approach roads/paths ( No requirement for construction of approach roads to the site as site has a motor able approach road)
- Formation of project team( The DSC has already project team at Kotdwara, contractor after mobilisation will deploy his team)

### 104. **DETAILED DESIGN AND CONSTRUCTION DRAWINGS**

- The detailed design will be done in parallel with the construction works and shall be made available to the contractor according to work plan

**105. Parameters for the Design of Sub-Project Components**

- To establish the parameters of the design of structure, various properties and parameters regarding the sub soil at site were required and the parameters were achieved through the Geo-Technical investigations like soil profile, Engineering properties, physical characteristics of the soil strata, variation in strength of soil strata, etc. The design parameters are listed below:

(i) Sub-Surface conditions (thickness of the different soil strata)

(ii) Depth of Ground water table

(iii) Safe bearing capacity of soil

(iv) Depth of foundation

(v) Suitable types of foundation

(vi) Densities of different materials for excavation and filling

**106. Site Investigations for Design**

Prior to construction, all required investigations were made at site which include standard penetration test, plate load test, ground water table and other laboratory tests which include density and moisture contents, sieve analysis, hydrometer analysis, consistency limits, direct shear test, specific gravity tests, etc.

**107. CONSTRUCTION METHODOLOGY**

The project involves execution of excavation, filling and concreting besides other building civil works. The project works do not require large areas for excavations. The excavations will be for foundation works and retaining wall towards Malini River side. The excavated earth will be stored aside and later will be used for landscape works. Considering the magnitude and nature of construction activity, mechanized construction has been considered at Kanvashram site, for all type of construction job so as to achieve consistent quality at a faster rate for timely completion of the sub-project. Special attention has been paid to the equipment planning for Excavation of soil, Backfilling and compaction of same in Layers, Compacting original ground supporting embankment loosening of the ground up to a level of 300 mm below,

Leveling and Compacting original ground supporting embankment to the Technical Specification Clause 301.4.1. Dry density as given in Tables 300.1 and 300.2 (in specifications) for embankment construction as per Technical Specification and taking up river protection works by construction of retaining wall. The work is assumed to continue uninterrupted till its completion. It will be ensured that no construction material is stored towards river side and no construction wastes are disposed off. A sensitization workshop will be conducted by environmental expert of DSC after mobilisation of the contractor. The component wise area breakup for Kanvashram site is given below in **Table-20**:

**Table-20: Component Wise Area Breakup for Kanvashram Site**

Component wise area breakup	
Item Description	Total Area Sqm
<b>Total Project Site Area</b>	<b>31552.00</b>
<b>Components</b>	
Lake	10850.00
Pathway	1742.75
Parking	981.00
Driveway	259.10
Multi-Facility Complex	524.40
Amphitheatre	1225.00
Open Air Gymnasium	2709.15
Children's Park	580.00
Gazebo	157.50
Security Room	16.50
Flood Protection Wall	387.00
Total Hardware Component Area	<b>19432.40</b>
<b>Island Green Area</b>	<b>856.80</b>

*Source: Detailed Project Report*

108. The lake to be constructed at Kanvashram is a small water body having an area of 10850 m<sup>2</sup>. As shown in **Figure -3** it will be of gourd shaped with one Gazebo ( sitting place) with necessary access. There will not be any excavation except for peripheral boundary wall foundation. The height of the boundary of this water body will be 2.75 m (2 m water level and free board of 0.750m). The cut and fill quantities and consumption of natural resources is given below in **Table-21**.

**Table-21: Cut and Fill Quantities and Consumption of Natural Resources at Kanvashram Site**

Sl. No	Description	Unit	Quantity		Utilization	
Earth Work						
01.	Earth Generated due to Excavation	cum	20540		Filling of Lake Embankment= 15000.00	
02.	Earth work required for Filling Works	cum	5000		Filling in other areas = 5000 m3	
03.	Supply of Good Earth	cum	5000		Good earth will be procured from outside sub project site	
04.	Back Filling with Stone Materials	cum	700		This will be procured from licensed quarries	
Consumption of Natural Resources						
05.	Concrete works	Total Volume of Work	Consumption of Materials			
			Cement(Tones)	Fine Aggregates (Tones)	Coarse Aggregates(Tones)	Source
05(a)	PCC (1:3:6)	5000 cum	1000	21525	81250	Fine and coarse aggregates will be procured from Licensed quarries only
05(b)	PCC (1:2:4)	250 cum	69.30	145.2	484	
06.	RCC Works					
06(a)	RCC M-20	2150 cum	623.5	1496.4	2915.4	Fine and coarse aggregates will be procured from Licensed quarries only
06(b)	RCC M-25	300 cum	96	225.3	435	
07.	Brick Work	350 cum	16.35	104.4	141900 Nos of Bricks	Bricks from local suppliers
Grand Total (Tones)			1805.15	23496	85084.4	110385.55

*Source: Detailed Project Report*



109. It is clear from the above table that excavated earth generated at Kanvashram site shall be fully utilized. Fresh earth for landscaping works will be procured from outside sub-project site. For this areas will be identified during construction phase. The fine and coarse aggregates will be procured from licensed quarries only. It in the light of methodology explained in the above paragraphs that all impacts will be construction related and locally confined. These will be mitigated through implementation of EMP.

110. All construction activities to be undertaken at the site will be approved by PIU and DSC as per approved construction plan of the contractor. 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.

**Impacts due to stock piles of construction materials, construction Waste and Slope Cut:** Improper stockpiling of construction materials and cut generated due to development of Production cum Training Centers (Chopariyal, Mavakot and Kuthar) can obstruct movement around sub-project sites. The Kanvashram site is away from village so obstruction of movement is not anticipated at this site. Due consideration will be given for material storage at sub-project sites, stockpiles will be covered to protect from dust and erosion. The construction waste will be generated at each sub-project site due to creation of infrastructure at each sub-project site. This construction waste materials will be disposed off at identified and approved locations. The cut is not likely to be generated at most of the sites as the locations finalized for infrastructure are plain. At Kanvashram site cut generated will be utilized in filling at site. Any surplus cut will be disposed off at the identified site.

111. **Disposal of construction waste:** The construction waste could lead to untidy conditions at sites and may find its way to local stream (especially at Kanvashram site) and siltation and obstruction to natural flow in the streams. In the proposed sub-project sites, it shall be made mandatory for the contractor(s) involved in construction activities for proper disposal of the construction waste at the disposal sites as designated by the PIU and DSC for each sub-project site.

112. **Quarry/Borrow pits operations:** All the construction materials will be procured from market as construction works are of relatively 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. It is concluded that no quarry /borrow pit related impacts are anticipated in the sub-project.

113. **Increase in noise levels:** Noise levels in the immediate proximity of work sites 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. The sub-project sites are close to village habitations, therefore, construction crew and villagers will feel noise impacts of construction activities for a short period. The Kanvashram site is away from habitation. The workers exposed will be suitably equipped with ear muffs. The construction activities during night time will not be taken up at villages.

114. **Impacts on biodiversity during construction phase:** No major impacts are expected on the biodiversity during the construction phase as the sub-project sites are open. At Kanvashram site there may be accidental impacts on river ecology and on terrestrial ecology due to spillage of construction materials in river or due to accidental cutting of trees. There will be impacts on ecology if material storage and vehicle parking is outside delineated site at Kanvashram as all land is forest land. At village sites impacts on biodiversity will be limited to the removal of shrubs and grasses from the construction sites of project related infrastructure. No additional land of forest is proposed to be acquired.

115. **Disturbance to traffic during construction phase:** At the time of construction there will be disturbance and inconvenience for the movement of the public and vehicles due to project construction activities. These inconveniences will be temporary in nature and last for a very short duration. The vehicular traffic on account of construction activities will not be significant.

116. **Impacts on cultural properties:** The proposed project will have no impacts on religious structures or any other structure of historical, archaeological and/or cultural significance.

117. 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. At the construction camps septic tanks will be provided for proper disposal of waste water.

118. 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, and vehicles engaged in transportation of construction materials. Pollutants of primary concern at this stage include

Respirable (PM<sub>2.5</sub>) and Suspended Particulate Matter (PM<sub>10</sub>) and gaseous emissions (NO<sub>x</sub>, SO<sub>2</sub>, 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.

119. 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 transportation of construction materials 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.

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

121. 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. Since there are habitations close to the sub-project sites, therefore noise from all construction activities need to be controlled to minimize the impacts. It is anticipated that noise levels will not exceed the limits of Residential areas. But necessary monitoring of noise levels will be taken up as part of environmental monitoring plan.

122. The construction activity at all locations of sub-project sites will be confined to a very limited area.

123. Debris/solid waste will be generated due to; excavated earth material and waste generated from construction camps, debris/excavated earth material can be reused subject to the approval of the Engineer during the construction. Waste generated from the construction camps and construction sites will be disposed off as per law to the satisfaction of the Engineer.

124. The clean-up and restoration operations are to be implemented by the contractor prior to demobilization at all the eleven sub-project sites, where physical infrastructure is

proposed. The contractor will clear all temporary structures and dispose off all garbage from construction camp sites. 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.

125. 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 labor camp(s) with all basic amenities such as potable drinking water supply and sanitation facilities (septic tanks and soak pits) 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 labor camps.

## **2. Land Acquisition and Social Due Diligence**

126. The implementation of the sub-project will not involve dislocation or involuntary resettlement of people. 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 phase. The impacts on land acquisition and resettlement have been summarized in **Table-22** below:

**Table 22: Sub-project Components and its Impacts on Land Acquisition & Resettlement**

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
Tehri Garhwal District					
Gajana (Block Tehri)	<ul style="list-style-type: none"><li>• Seating Arrangement (2 nos)</li><li>• Hand Railing for trek (200 m)</li><li>• Bench with shed (2 nos)</li><li>• Solar Lightning System (5 nos)</li><li>• Garbage Bins (2 nos)</li><li>• Sign Board/Name Plate etc.</li></ul>	<b>Home stay trainings</b> <ul style="list-style-type: none"><li>• House keeping</li><li>• Cooking and Food Handling</li></ul> <b>Adventure trainings</b> <ul style="list-style-type: none"><li>• Trekking</li><li>• Bird Watching</li><li>• Nature Walk/Jungle Walk</li></ul> <b>Off Season Activities</b> <ul style="list-style-type: none"><li>• Packaging</li><li>• Solid waste Management</li><li>• Crowd and Disaster Management Training</li><li>• Cultural Interpretation Guide Training</li><li>• Cultural Group Training</li><li>• Organic Farming</li><li>• Ancillary Service Provider Training (Taxi Drivers)</li><li>• Ancillary Service Provider Training (Restaurants and Dhaba owners)</li><li>• Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li><li>• Communication and Marketing Training</li></ul>	Nil	Nil	NOC from village Panchayat obtained
Chopariyal (Block Tehri)	<ul style="list-style-type: none"><li>• Training cum Production Centre along with toilet (1no)</li><li>• Kiosk (3 x 3 m)</li><li>• Solar Lightning System (5 nos)</li></ul>	<b>Home stay trainings</b> <ul style="list-style-type: none"><li>• House keeping</li><li>• Cooking and Food Handling</li></ul>	Nil	Nil	NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
	<ul style="list-style-type: none"> <li>Garbage Bins (2 nos)</li> <li>Sign Board/Name Plate etc.</li> <li>Electrical work for production centre and kiosk</li> </ul>	<b>Adventure trainings</b> <ul style="list-style-type: none"> <li>Trekking</li> <li>Bird Watching</li> <li>Nature Walk/Jungle Walk</li> </ul> <b>Off Season Activities</b> <ul style="list-style-type: none"> <li>Fruit Processing</li> <li>Packaging</li> <li>Solid waste Management</li> <li>Crowd and Disaster Management Training</li> <li>Cultural Interpretation Guide Training</li> <li>Cultural Group Training</li> <li>Organic Farming</li> <li>Ancillary Service Provider Training (Taxi Drivers)</li> <li>Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>Communication and Marketing Training.</li> </ul>			
Arakot (Block Tehri)	Nil	<b>Home stay trainings</b> <ul style="list-style-type: none"> <li>House keeping</li> <li>Cooking and Food Handling</li> </ul> <b>Adventure trainings</b> <ul style="list-style-type: none"> <li>Trekking</li> <li>Bird Watching</li> <li>Nature Walk/Jungle Walk</li> </ul> <b>Off Season Activities</b>	Nil	Nil	NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
		<ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> <li>• Ancillary Service Provider Training (Taxi Drivers)</li> <li>• Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>• Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>• Communication and Marketing Training.</li> </ul>			
Chokhala (Block Tehri)	Nil	<p><b>Home stay trainings</b></p> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <p><b>Adventure trainings</b></p> <ul style="list-style-type: none"> <li>• Trekking</li> <li>• Bird Watching</li> <li>• Nature Walk/Jungle Walk</li> </ul> <p><b>Off Season Activities</b></p> <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> </ul>	Nil	Nil	NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
		<ul style="list-style-type: none"> <li>Ancillary Service Provider Training (Taxi Drivers)</li> <li>Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>Communication and Marketing Training.</li> </ul>			
Tipri (Block Jakhanidhar)	<ul style="list-style-type: none"> <li>Toilet Block (1 no)</li> <li>Bench with shed</li> <li>Solar Lightning System</li> <li>Garbage Bins (2 nos)</li> <li>Sign Board/Name Plate etc.</li> <li>Electrical work for toilet block</li> </ul>	<p><b>Home stay trainings</b></p> <ul style="list-style-type: none"> <li>House keeping</li> <li>Cooking and Food Handling</li> </ul> <p><b>Adventure trainings</b></p> <ul style="list-style-type: none"> <li>Trekking</li> <li>Bird Watching</li> <li>Nature Walk/Jungle Walk</li> </ul> <p><b>Off Season Activities</b></p> <ul style="list-style-type: none"> <li>Packaging</li> <li>Solid waste Management</li> <li>Crowd and Disaster Management Training</li> <li>Cultural Interpretation Guide Training</li> <li>Cultural Group Training</li> <li>Organic Farming</li> <li>Ancillary Service Provider Training (Taxi Drivers)</li> <li>Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> </ul>	Nil	Nil	NOC from village Panchayat obtained



Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
		<ul style="list-style-type: none"> <li>• Communication and Marketing Training.</li> </ul>			
Uthar (Block Jakhanidhar)	Nil	<p><b>Home stay trainings</b></p> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <p><b>Adventure trainings</b></p> <ul style="list-style-type: none"> <li>• Trekking</li> <li>• Bird Watching</li> <li>• Nature Walk/Jungle Walk</li> </ul> <p><b>Off Season Activities</b></p> <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> <li>• Ancillary Service Provider Training (Taxi Drivers)</li> <li>• Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>• Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>• Communication and Marketing Training.</li> </ul>	Nil	Nil	NOC from village Panchayat obtained
Mukhem (Block Pratap Nagar)	<ul style="list-style-type: none"> <li>• Bench with shed (5 nos)</li> <li>• Pathway (150 m)</li> <li>• Garbage Bins</li> <li>• Sign Board/Name Plate etc.</li> </ul>	<p><b>Home stay trainings</b></p> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <p><b>Adventure trainings</b></p>			NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
		<ul style="list-style-type: none"> <li>• Trekking</li> <li>• Bird Watching</li> <li>• Nature Walk/Jungle Walk</li> <li>• Horse ridding</li> </ul> <p><b>Off Season Activities</b></p> <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> <li>• Ancillary Service Provider Training (Taxi Drivers)</li> <li>• Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>• Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>• Communication and Marketing Training.</li> </ul>			
<b>Pauri Garhwal District</b>					
Kanvashram(Block Dogadda)	<p><b>Construction of Lake</b></p> <ul style="list-style-type: none"> <li>• Site Preparation</li> <li>• Embankment Wall</li> <li>• Railing work</li> <li>• Development of Island</li> <li>• Inlet and Outlet Drain</li> <li>• Gazebo (7 nos)</li> <li>• Car Parking</li> <li>• Driveway</li> </ul>	<p><b>Home stay trainings</b></p> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <p><b>Adventure trainings</b></p> <ul style="list-style-type: none"> <li>• Trekking</li> <li>• Bird Watching</li> <li>• Nature Walk/Jungle Walk</li> <li>• Horse ridding</li> </ul>	3.074 Ha Forest Land from State forest Department Transferred. No private land acquisition	Nil	NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
	<ul style="list-style-type: none"> <li>• Pathway</li> <li>• Boundary Wall</li> <li>• Development of Kanvashram</li> <li>• Multi Facility Centre</li> <li>• Amphitheatre</li> <li>• Security Room</li> <li>• Bridge</li> <li>• Electrical work including water fountain</li> <li>• Outdoor Gym Equipment's</li> <li>• Equipment's for Children Park</li> <li>• Peddle Boat</li> <li>• Garden Benches</li> <li>• Dustbins</li> </ul>	<b>Off Season Activities</b> <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> <li>• Ancillary Service Provider Training (Taxi Drivers)</li> <li>• Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>• Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>• Communication and Marketing Training.</li> </ul>			
Kalalghati (Block Dogadda)	<ul style="list-style-type: none"> <li>• Toilet Block (1no)</li> <li>• 700 m Water distribution line</li> <li>• Solar Lightning System</li> <li>• Garbage Bins</li> <li>• Electrical work for toilet block</li> </ul>	<b>Home stay trainings</b> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <b>Adventure trainings</b> <ul style="list-style-type: none"> <li>• Trekking</li> <li>• Bird Watching</li> <li>• Nature Walk/Jungle Walk</li> <li>• Horse ridding</li> </ul> <b>Off Season Activities</b> <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> </ul>	Nil	Nil	NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
		<ul style="list-style-type: none"> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> <li>• Ancillary Service Provider Training (Taxi Drivers)</li> <li>• Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>• Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>• Communication and Marketing Training</li> </ul>			
Mavakot (Block Dogadda)	<ul style="list-style-type: none"> <li>• Training cum Production Centre along with toilet (1no)</li> <li>• Toilet Complex at Mela Ground (1no)</li> <li>• Drinking water fountain at Mela Ground (1 no)</li> <li>• Seating arrangement around tree at Mela Ground.</li> <li>• Garbage Bins (2 nos)</li> <li>• Garbage bin</li> <li>• Electrical work for production centre.</li> </ul>	<p><b>Home stay trainings</b></p> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <p><b>Adventure trainings</b></p> <ul style="list-style-type: none"> <li>• Trekking</li> <li>• Bird Watching</li> <li>• Nature Walk/Jungle Walk</li> <li>• Horse ridding</li> </ul> <p><b>Off Season Activities</b></p> <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> <li>• Ancillary Service Provider Training (Taxi Drivers)</li> <li>• Ancillary Service Provider Training</li> </ul>	Nil	Nil	NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
		(Restaurants and Dhaba owners) • Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers) • Communication and Marketing Training			
Sendhi (Block Dogadda)	<ul style="list-style-type: none"> <li>• Seating arrangement around tree near temple.</li> <li>• Hand Railing (300 m)</li> <li>• Bench with shed (5 nos)</li> <li>• Solar lightning system.</li> <li>• Garbage Bins (3 nos)</li> <li>• Sign Board/Name Plate etc.</li> </ul>	<b>Home stay trainings</b> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <b>Adventure trainings</b> <ul style="list-style-type: none"> <li>• Trekking</li> <li>• Bird Watching</li> <li>• Nature Walk/Jungle Walk</li> <li>• Horse ridding</li> </ul> <b>Off Season Activities</b> <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> <li>• Ancillary Service Provider Training (Taxi Drivers)</li> <li>• Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>• Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>• Communication and Marketing Training</li> </ul>	Nil	Nil	NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
Jaiharikhal (Block Jaihari)	<ul style="list-style-type: none"> <li>• Urinal Complex (1 no)</li> <li>• Bench with shed (5 nos)</li> <li>• Solar lightning system.</li> <li>• Garbage Bins (4 nos)</li> <li>• Sign Board/Name Plate etc.</li> </ul>	<p><b>Home stay trainings</b></p> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <p><b>Adventure trainings</b></p> <ul style="list-style-type: none"> <li>• Trekking</li> <li>• Bird Watching</li> <li>• Nature Walk/Jungle Walk</li> <li>• Horse ridding</li> </ul> <p><b>Off Season Activities</b></p> <ul style="list-style-type: none"> <li>• Packaging</li> <li>• Solid waste Management</li> <li>• Crowd and Disaster Management Training</li> <li>• Cultural Interpretation Guide Training</li> <li>• Cultural Group Training</li> <li>• Organic Farming</li> <li>• Ancillary Service Provider Training (Taxi Drivers)</li> <li>• Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>• Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>• Communication and Marketing Training</li> </ul>			NOC from village Panchayat obtained
Kuthar (Block Yamkeshwar)	<ul style="list-style-type: none"> <li>• Training cum Production Centre along with toilet (1no)</li> <li>• Toilet Complex at Mela Ground (1no)</li> <li>• Repairing of existing Water Vat for curing of Bhimal Tree for</li> </ul>	<p><b>Home stay trainings</b></p> <ul style="list-style-type: none"> <li>• House keeping</li> <li>• Cooking and Food Handling</li> </ul> <p><b>Adventure trainings</b></p> <ul style="list-style-type: none"> <li>• Trekking</li> </ul>			NOC from village Panchayat obtained

Location /Village	Sub-project Components		Impact on Land Acquisition and Resettlement	Temporary Impact	Remarks
	Physical Component	Software component			
	<ul style="list-style-type: none"> <li>getting fiber.</li> <li>Desilting of existing water body and its side Development</li> <li>Seating Arrangement along the tree at Kuthar.</li> <li>Fencing with Green Net -100m</li> <li>Sign Board/Name plate etc.</li> <li>Solar Lighting System.</li> <li>Garbage Bins - 3 Nos</li> <li>Electrical Works for Production Centre and Toilet Complex</li> </ul>	<ul style="list-style-type: none"> <li>Bird Watching</li> <li>Nature Walk/Jungle Walk</li> <li>Horse ridding</li> </ul> <p><b>Off Season Activities</b></p> <ul style="list-style-type: none"> <li>Mandir Prasad (Preparation and packaging)</li> <li>Bhimal Wood fiber craft.</li> <li>Packaging</li> <li>Solid waste Management</li> <li>Crowd and Disaster Management Training</li> <li>Cultural Interpretation Guide Training</li> <li>Cultural Group Training</li> <li>Organic Farming</li> <li>Ancillary Service Provider Training (Taxi Drivers)</li> <li>Ancillary Service Provider Training (Restaurants and Dhaba owners)</li> <li>Ancillary Service Provider Training (Existing Primary and Secondary Accommodation Providers)</li> <li>Communication and Marketing Training</li> </ul>			

127. It is clear from above **Table-22** that sub-project will not result in any permanent land acquisition and resettlement impacts because all construction will be within the government owned land. Necessary Forest clearance under the 'Forest (Conservation) Act, 1980 has been obtained for the Kanvashram site.

#### **Impacts during Operation Phase**

128. Impacts on environmental conditions associated with the operation stage of the sub-project components pertain to impacts due to enhanced tourist activities. The impacts pertaining to regulation of tourist movements, planning the extent of facilities and amenities in line with the carrying capacity shall enable addressing operation stage impacts, which are taken care through Govt. of India, for the state including all potential tourist destinations.

129. Ecological impacts will be felt on Malini River at Kanvashram sub-project site if waste water is discharged or there is unregulated discharge of lake water to the River. Impacts on river Malini will also be felt if water is withdrawn for filling of the artificial lake. Since there is provision of multi facility center at Kanvashram site, waste water generated from toilet block will impact river water if its untreated discharge flows to the River. The ecological impacts on Malini River at Kalalghati and Mavakot are not anticipated as river is about 1.2 km from both sites as there are no chances of waste water disposal from sub-project sites.

130. The river ecology at Kanvashram site may have impact due to sudden discharge of lake water to the Malini River at Kanvashram site. In order to ascertain impacts on River, regular monitoring of lake water and river is planned during the construction phase. At other sites of sub-project, there are no surface water sources close to the project sites.

131. No impact is anticipated on the ground water quality during the operation phase as there will be proper disposal of waste water from toilet blocks planned at the respective locations. The toilet blocks will have properly constructed septic tanks followed by soak pits. The water for filling of artificial lake at Kanvashram site will occasionally be drawn (only during summer months if there is no flow in the canal) from bore well planned at site. Maximum capacity of lake is 36000 m<sup>3</sup>. This withdrawal will not have any impacts as adequate recharge will take place during monsoon season.

132. The solid waste generated at each site of sub-project during operation phase will be segregated and organic waste will be used for composting. The DPR will make provision for the compost pit. The dustbins in adequate numbers are planned to be provided at each site of sub-project. The numbers of dust bins planned at each site have been provided in Table - 20 above.



133. During operation phase impact on air quality will be due to vehicular movement to reach the respective sites. In order to record the changes in air quality on account of tourists' movement, there will be regular ambient air quality monitoring during the operation phase.

134. During the operational phase, impacts on noise environment will be due to vehicular movement of tourists visiting the sites. The rise in noise levels will not be excessively high to cause human annoyance. However, ambient noise levels will be measured during tourist movement.

135. **Safety Measures:** The safety measures along access Trekking route at Gajana (Tehri), pathways at Mukhem (Tehri) and Kanvashram (Pauri) will include railings. The sheds have been planned at Mukhem (Tehri) and Jaiharikhal (Pauri) villages and solar lighting at Gajana, Kuthar, Chopariyal, Tipri, Kalalghati, Sendhikhal and Jaiharikhal villages. There will be display of 'Do and Don'ts' at all locations. The other safety features are explained below:

- Safety features will be included through proper lighting, safe and wide access path.
- During natural calamities, the operations will be stopped and tourists will be safely evicted by the tourism department as per Disaster Management plan of the state.
- Necessary first aid facilities will also be planned at all the thirteen sub-project sites.

136. **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 at villages, commercial and business facilities for locals at these selected villages and increased densities are expected to develop and enhance the sub-project area.

137. The major advantages of implementation of the sub-project will be:

- (i) Rural Tourism 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 Rural 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.

## Description of Planned Mitigation Measures

138. Screening of environmental impacts is based on the magnitude and duration of the impact. **Table 23** provides the potential environmental impacts and the mitigation measures including the responsibilities for implementing the same. All the sub-project sites are located sufficiently away from Protected Areas. The Kanvashram site being located in Reserved Forest land. For this site, forest clearance under the 'Forest (Conservation) Act', 1980 has been obtained. The project interventions are proposed within available government lands and existing right-of-way.

**Table 23: 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 components of the <b>sub-projects</b> been done considering earthquake coefficient of zone IV and considerations are also there for sustainability of infrastructure during natural disasters.	PIU / DSC
1.2	Finalization of locations of project sites outside Protected areas	Permanent	Major	The retaining wall of adequate height is planned towards Malini River side at Kanvashram site.  All the locations of subproject have been planned outside protected areas. The Kanvashram site being in reserved forest (area 3.074 Ha). For this clearance has been obtained and land for compensatory afforestation identified by the Forest Department.	
2	Design Impacts and Pre-construction Impacts				
2.1	Layout of	Permanent	Major	The project	PIU / DSC

<b>Sl. No.</b>	<b>Potential Environmental Issues</b>	<b>Duration / Extent</b>	<b>Magnitude</b>	<b>Proposed Mitigation Measures</b>	<b>Institutional Responsibilities</b>
	components to avoid impacts on the aesthetics of the subproject sites			components will not have any impacts on local aesthetics. On the contrary, the project interventions will beautify each sub-project site. Hence no mitigation measures are warranted.	
<b>2.2</b>	Slope stability related issues	Permanent	Minor	Most of the sub-project sites are in plain areas. However, slope protection measures for uncovered slopes in the surroundings of subproject sites such as pitching, vegetation, benching, etc. planned in DPR and cost built-in	PIU/DSC
<b>2.3</b>	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 at sub-project sites	Permanent	Moderate	Design of proposed components will enable efficient drainage at each subproject site and maintain natural drainage patterns. Since all the subproject sites are in hilly terrain so drainage issue is not likely as natural drainage will take care site drainage also.  At Kanvashram site project components planned away from River flow area (outside flood plains). In pre construction phase, there will be construction of retaining wall towards Malini River side so that there is not kind of spillage or disposal of construction waste. No chance of any runoff from Mavakot and Kalalghati sites as Malini River is > 1.0 km.	PIU/DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
2.4	Integration of energy efficiency and energy conservation programs in design of sub-project components	Permanent	Moderate	<p>Following measures have been included in design for Energy Efficiency:</p> <ul style="list-style-type: none"> <li>• Usage of recyclable materials like wood substitutes.</li> <li>• Installation of BEE certified equipment</li> <li>• Usage of energy efficient lighting fixtures (LED and solar).</li> <li>• Solar Energy based lighting at most of the subproject sites.</li> </ul>	PMU/PIU/DSC
2.5	Ecological ( Cutting of 36 no of trees, removal of shrubs and vegetation and acquisition of 3.074 Ha forest land) Impacts at Kanvashram site	Permanent	Moderate	<p>Following mitigation measures have been planned:</p> <ul style="list-style-type: none"> <li>• Compensatory plantation in 1:3 ratio</li> <li>• Identification of compensatory afforestation land and payment of Net Present Value of this land to Forest Department</li> <li>• Forest Clearance obtained</li> <li>• Clearing of vegetation and shrubs from delineated site only.</li> <li>• Establishment of construction camp outside Forest land and flood plain of river</li> <li>• Vehicle parking outside forest land</li> </ul>	
<b>3</b>	<b>Construction Impacts</b>				
3.1	Construction Camps - Location, Selection, Design	Temporary	Moderate	Construction camps will be located within Government and non-forest land at each	Contractor / DSC

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<b>Sl. No.</b>	<b>Potential Environmental Issues</b>	<b>Duration / Extent</b>	<b>Magnitude</b>	<b>Proposed Mitigation Measures</b>	<b>Institutional Responsibilities</b>
	and Layout			subproject site and it will ensured that camp does not endanger any natural spring or local stream. The camp sites will be finalized in consultations with village Panchayat. Adequate sanitation facilities shall be provided at camp sites and no waste water will be discharged outside. For this necessary septic tank with soak pit will be provided at construction camp location.	
<b>3.2</b>	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 from the Engineer, circulation plan during construction for safe passage of local people, tourists visiting/passing close to subproject sites 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 this information and circulation plan at all subproject sites.	Contractor/ DSC/PIU
<b>3.3</b>	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 to minimize	Contractor / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				environmental impacts.  All the areas used for temporary construction operations will be subject to complete restoration to their former condition with appropriate rehabilitation procedures. These areas will be outside forest land, if there is reserved or protected forest close to sub project sites.	
<b>3.4</b>	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
<b>3.5</b>	Waste disposal	Permanent	Major	Location of disposal sites for construction waste and cut generated at sub project sites, internal road development at selected villages for rural tourism 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. Special attention will be paid to waste disposal at Kanvashram site as this site has reserved forest in the vicinity.	Contractor / DSC

<b>Sl. No.</b>	<b>Potential Environmental Issues</b>	<b>Duration / Extent</b>	<b>Magnitude</b>	<b>Proposed Mitigation Measures</b>	<b>Institutional Responsibilities</b>
				The local forest officials will be taken into confidence.	
<b>3.6</b>	Stockpiling of construction materials	Temporary	Moderate	<p>Stockpiling of construction materials does not impact or obstructs the drainage and stockpiles will be covered to protect from dust and erosion.</p> <p>The stockpiles will not be in River flood plain or reserved forest area at Kanvashram site. These stockpiles will be well within the subproject boundary. The boundary of sub project will be constructed in pre construction phase.</p>	Contractor / DSC
<b>3.7</b>	Soil Erosion	Temporary	Moderate	Slope protection measures will be undertaken as per design to control soil erosion at the subproject sites especially at Kanvashram site as this site is close to Malini River.	Contractor / DSC
<b>3.8</b>	Soil and Water Pollution due to fuel and lubricants, construction wastes	Temporary	Moderate	The fuel storage and vehicle cleaning area will be stationed such that water discharge does not drain into the River or water streams close to the sites. Soil and water pollution parameters will be monitored as per monitoring plan.	Contractor / DSC
<b>3.9</b>	Siltation of water bodies due to spillage of construction wastes	Temporary	Moderate	No disposal of construction wastes will be carried out into any stream (River Malini in case of Kanvashram site) near the subproject sites. Extraneous construction wastes	Contractor / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				will be transported to the pre-identified disposal sites for safe disposal. The disposal sites will be identified during construction phase.	
<b>3.10</b>	<b>Generation of dust</b>	Temporary	Moderate	The contractor will take every precaution to reduce the levels of dust at construction sites. Any fill site to be properly kept wet to minimize dust generation.	Contractor / DSC
<b>3.11</b>	Emission from Construction Vehicles, Equipment and Machinery	Temporary	Moderate	Vehicles, equipment and machinery used for construction will conform to the relevant Standards and will be regularly maintained to ensure that pollution emission levels comply with the relevant requirements.	Contractor / DSC
<b>3.12</b>	Noise Pollution	Temporary	Moderate	Noise limits for construction equipment used in this project will not exceed 75 dB (A) at 1 m distance as per CPCB norms.	Contractor / DSC
<b>3.13</b>	Material Handling at sub project sites	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	Contractor / DSC



Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				<p>clothing.</p> <p>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.</p>	
3.14	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 subproject sites.	Contractor / DSC
3.15	Safety Measures During Construction	Temporary	Moderate	<p>Adequate safety measures for workers during handling of materials at site will be taken up.</p> <p>The contractor has to comply 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.</p> <p>The Contractor will conform to all anti-malaria instructions given to him by the Engineer.</p>	Contractor / DSC
3.16	Clearing of Construction of	Temporary	Major	Contractor to prepare site restoration plans	Contractor / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
	Camps and Restoration			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	
3.17	Construction at Kanvashram site and Works ( Site close to Reserved Forest and Malini River )	Temporary	Major	The contractor will submit his work plan for the construction activities at Kanvashram site and routes for transportation of construction materials will be finalized in consultations with Forest officials. The monitoring of river water quality will be carried out as per monitoring plan.	Contractor/DSC
3.18	Compensatory Plantation at Kanvashram site	Permanent	Major	The compensatory plantation in the ratio of 1:3 will be taken up at the end of construction period. To compensate 36 trees to be cut minimum 108 trees will be planted in vacant space of subproject site. The compensatory plantation will be taken up before start of monsoon.	Contractor/DSC
4	<b>Operation and Maintenance impacts</b>				
4.1	Ecological Impacts	Permanent	Moderate	The water discharge	

<b>Sl. No.</b>	<b>Potential Environmental Issues</b>	<b>Duration / Extent</b>	<b>Magnitude</b>	<b>Proposed Mitigation Measures</b>	<b>Institutional Responsibilities</b>
	on Malini River at Kanvashram site			from Lake for periodic maintenance will be regulated through valve chamber so that there is no excess velocity in river.  The silt from bottom of lake surface will not be disposed off to the River and it will be disposed off identified site.	
<b>4.2</b>	Monitoring of Environmental Conditions	Temporary	Moderate	Air, water, noise and soil quality will be monitored at each site periodically as per the Environmental Monitoring Plan prepared.	Tourism department
<b>4.3</b>	Unhygienic conditions due to poor maintenance of sanitation facilities and irregular solid waste collection	Temporary	Severe	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 for inorganic waste and to compost pit for organic waste. The septic tanks will be emptied regularly. No waste water will be discharged to River Malini from Kanvashram site	Tourism department
<b>4.4</b>	Compensatory Plantation Maintenance at Kanvashram site	Permanent	Moderate	For first three years compensatory plantation will be monitored for survival. Assessment will be made before start of monsoon period and a minimum 95% survival will be ensured. Any deficiency observed will be made up through fresh plantation.	Tourism department

## **V. ENVIRONMENT MANAGEMENT PLAN (EMP)**

### **1. Institutional Arrangements**

139. 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.

140. 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 sub-projects for due diligence requirements and approve sub-project 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.

141. 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.

142. 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 sub-projects to satisfy ADB's due diligence requirements and approving sub-project 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.

143. 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 sub-project 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.

144. The Project Management Consultant (PMC) has been engaged to provide support to the PMU in overall planning, risk management, implementation, monitoring and evaluation of projects under the Investment Program. The PMC also assists the PMU and PIUs in meeting the relevant requirements of ADB, Government of Uttarakhand, and Government of India for project implementation. The PMC reports 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.

145. 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.

146. 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 24**, **Table-25** and **Table-26** present EMP for pre-construction, construction and operation phases of sub-project.

**Table 24: Environmental Management Plan for Pre Construction Stage**

Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
1	Lack of sufficient planning to assure long term sustainability of the improvements and ensure protection of the assets created	Design will include provisions for ensuring effective maintenance and protection of the assets created so as to ensure the long term sustainability. For this local village Panchayat /Specially Hired Agency/district administration will take care of assets.	O&M Criteria, Maintenance schedules of facilities and assets	PIU / DSC	PMU	Effective O&M criteria evaluation during DPR	Part of DSC professional fee
2	Layout of components to avoid impacts on the aesthetics of the surroundings of Rural Tourism Sub-project sites.	The project components (facilities for tourists at sub-project sites such as sanitation and drinking water facilities, Creation of natural lake at Kanvashram, seating arrangement near Jheel ,trees, parking, solar lighting, solid waste collection facilities, etc.) sitting will avoid impacts on the aesthetics of the surroundings as these are planned on already existing sites in use. At Kanvashram site no activity related to pre-construction works will be extended to Forest area in the surroundings.	Aesthetics of structures planned	PIU / DSC	PMU	During finalization of design and during implementation	DSC/PMC professional fee

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
3	Increased storm water runoff from alterations of the natural drainage patterns due to , excavation works at sub-project sites, development of amenities (drinking water, sanitation, internal road, facilities on Trekking Routes, rest sheds, etc.)	Design of proposed components will enable efficient drainage of the sites and maintain natural drainage patterns. It will be ensured that project activities at Kanvashram site do not lead to flow pattern of Malini River	Natural drainage of sub-project sites and surroundings	PIU/DSC	PMU	During finalization of design and during implementation	DSC/PMC professional fee
4	Integration of energy efficiency and energy conservation programs in design of sub-project components	The detailed designs for the sub-project components have included environmental sustainability principles, including energy efficiency (LED Lighting), resource recycling, waste minimization, use of renewable energy sources such as solar power, etc.	Specifications of electrical fittings, Renewable energy source provisions, waste minimization techniques during construction	PIU/DSC	PMU	Design phase ( DPR finalization stage)	DSC/PMC professional fee
5	Consents, permits, clearances, no objection	Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.	Consents, permits, clearance and	PIU	PMU	Check consent for establishment of construction	Project cost /PMU



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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	certificate (NOC), etc.	Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc.	NOCs Records and communications			camp (s) , Stage2 clearance for Kanvashram site and NOC from respective Panchayats of selected villages, prior to start of civil works and report to ADB in Monthly progress report	
6	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. Carry out environmental monitoring as per monitoring plan.	Records and Photographs and baseline environmental monitoring reports	Contractor	PIU/DSC	Once prior to construction	Contractor
7	Utilities	1-Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of	List and maps showing utilities to be shifted Contingency	- DSC will prepare preliminary list and maps of utilities to be	PIU/DSC	Pre Construction Phase	Contractor

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		<p>services during the construction phase.</p> <p>2-Contractors need to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.</p> <p>3-Obtain from the PIU and/or DSC the list of affected utilities and operators;</p> <p>4-If relocations are necessary; contractors will coordinate with the providers to relocate the utilities.</p>	plan for services disruption	<p>shifted</p> <p>- During detailed design phase, contractor to (i) prepare list and operators of utilities to be shifted; (ii) contingency plan</p>			
8	Social and Cultural Resources	<p>1-Consult Archaeological Survey of India (ASI) or Uttarakhand State Archaeology Department to obtain an expert assessment of the archaeological potential of all sub-project sites</p> <p>2-Consider alternatives if the site is found to be of medium or high risk.</p>	Chance find protocol	<p>- PMC to consult ASI or Uttarakhand State Archaeology Department</p> <p>- PMC to develop protocol for chance finds</p>	PMU	Prior to start of construction activities	DSC/PMC

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		<p>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.</p> <p>3-Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.</p>					
9	Construction Camps - Location, Selection, Design and Layout	<p>Siting of the construction camps for each sub-project shall be as per the guidelines below and details of layout to be approved by DSC.</p> <p>The potential sites will be selected for labor camp and these shall be visited by the</p>	Construction camps site, and locations of material storage areas, sanitation facilities	Contractor(s)	DSC/ PIU	At the time of construction camp establishment and finalization of storage areas	Contractor

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		<p>DSC environmental expert and one having least impacts on environment will be approved by the DSC. As far as possible construction camp will be established at in vacant land close to sub-project sites. The construction camp at Kanvashram site will be established as far as possible from Malini River and outside forest area.</p> <p>Location for stockyards for construction materials shall be identified within the sub-project sites geographical boundaries /facilities or at sites at a minimum distance of 100 m from streams. In case of Kanvashram site it will be as far as possible from Malini River.</p> <p>Construction of sanitation facilities shall be adequately</p>					

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		planned, The Sewage collection and treatment and disposal through construction of septic tanks and soakpits and solid waste collection and disposal at camp sites shall be designed, built and operated. In no case waste water will be discharged outside camp site.					
10	Sources of construction materials	Obtain all construction materials for respective sub-project sites from the market as material requirement will not be significant.  Submit to DSC on a monthly basis documentation of sources of materials.	Permits issued to quarries/sources of materials	Contractor ( s)  PMC and DSC to verify sources (including permits)	PMU  PIU	Upon submission by contractor	PMC and DSC as part of consultancy fee
11	Access	1- Prepare traffic management plan for the for the sub-project sites for proper regulation of local traffic and traffic on account of	Traffic management plan	Contractor( s)	PIU and DSC	During Delivery of construction materials	Contractor

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		<p>tourists visiting or passing through roads close to the sub-project sites.</p> <p>2-Plan transportation routes (Traffic Management Plan) so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of sites.</p> <p>3-Schedule transport and hauling activities during non-peak hours.</p> <p>4-Locate entry and exit points in areas where there is low potential for traffic congestion.</p> <p>5-Keep all the sub-project sites free from all unnecessary obstructions.</p> <p>6-Drive vehicles in a considerate manner.</p> <p>Coordinate with the Traffic Police Department for temporary road diversions</p>					

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		and for provision of traffic aids if transportation activities cannot be avoided during peak hours.  7-Notify affected sensitive receptors (educational institutes, health facilities) by providing sign boards with information about the nature and duration of construction works and contact numbers for concerns/complaints.  Provide free access to households close to the sites of sub-project where construction works are in progress.					
12	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	Health and safety (H&S) plan	Contractor(s)	PMU and PMC  PIU and DSC	To be included in updated IEE report	Contractor

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		<p>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.</p> <p>Include in H&amp;S plan measures such as: (i) type of hazards at the construction site; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&amp;S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents. Provide medical insurance coverage for workers.</p>					
13	Public consultations	Continue information dissemination, consultations, and involvement/participation of stakeholders during project implementation.	<ul style="list-style-type: none"> <li>- Disclosure records</li> <li>- Consultations</li> </ul>	PMU and PMC PIU and DSC Village Panchayats , Forest officials ,Contractor(s)	PMU and PMC	- During updating of IEE Report- During preparation of site- and activity-specific plans as per EMP- Prior to	PMU  Contractor to allocate funds to support



Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
						start of construction- During construction	

**Table 25: Environmental Management Plan for Construction Stage**

Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
1	Site clearance activities, including delineation of construction areas at sub-project sites	Shrubs and grass (no trees) shall be removed from construction sites (at locations of planned amenities/facilities at sub-project sites of rural tourism villages in Tehri and Pauri Garhwal districts) before commencement of construction. All works shall be carried out such that the damage or disruption of flora other than those identified for cutting is minimum. It will be ensured that only identified and enumerated	Site clearance plan and demarcation of construction areas	Contractor	DSC / PIU	Construction sites delineation	Contractor(s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		<p>36 trees at Kanvashram site are cut by the Forest Department</p> <p>Only ground cover/shrubs that impinge directly on the permanent works or necessary temporary works shall be removed with prior approval from the Environmental Expert of DSC</p> <p>All areas used for temporary construction operations will be subject to complete restoration to their former condition with appropriate rehabilitation procedures.</p> <p>No area for temporary construction will be planned in forest area at Kanvashram site.</p>					
2	Drinking water availability	Sufficient supply of cold potable water to be provided and maintained. If the drinking water is obtained from an intermittent public water supply then storage tanks will be provided. .At construction camp sites	Availability of water at identified sources, drinking water quality results	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		water will be arranged as per available source followed by storage					
3	Waste disposal	<p>The pre-identified disposal location shall be part of Comprehensive Waste Disposal Plan. Solid Waste Management Plan to be prepared by the Contractor at respective sub-project sites in consultation and with approval of Environmental Specialist of DSC.</p> <p>The Environmental Specialist of DSC shall approve these disposal sites after conducting a joint inspection on the site with the Contractor.</p> <p>Contractor(s) shall ensure that waste shall not be disposed off near any water course (Malini River) or local streams close to sub-project sites, Forest area, National Park area, agricultural land, Orchards, Natural Habitats like Grasslands, etc.</p>	Waste Disposal sites, waste management plan	Contractor( s)	DSC / PIU	Regularly during construction phase	Contractor( s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
4	Stockpiling of construction materials	<p>Stockpiling of construction materials does not impact, obstruct the drainage and Stockpiles will be covered to protect from dust and erosion. If these are exposed than regular water spray shall be carried out.</p> <p>The stock piling will not be done near the Malini River at Kanvashram site. At this site stock piling will not be carried out in forest area also. First retaining</p>	Identified locations of stockpiling	Contractor(s)	DSC/ PIU		Contractor(s)
5	Borrow Area Operations ( if required in case of unforeseen situations)	Contractor shall finalize the borrow areas for procurement of earth after assessment of the availability of sufficient quantity of earth; avoid productive agriculture areas, consent of owner and other logistic arrangements. Although at DPR stage no need have borrowed area operation has been identified.	Consent of land owner, availability of earth at borrow sites, transportation routes	Contractor (s)	DSC / PIU	Regularly during construction phase	Contractor(s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		Adequate safety precautions will be ensured during transportation of borrow earth material from borrow areas to the construction sites. Vehicles transporting the material will be covered to prevent spillage.  The borrow areas shall not be operated in River Bed or flood plains of Malini River.					
6	Arrangement for Construction Water	The contractor(s) shall use ground/surface water as a source of water for the construction with the written consent from the concerned Department.  To avoid disruption/ disturbance to other water users, the Contractor(s) shall extract water from fixed locations and consult DSC before finalizing the locations.  The Contractor(s) shall provide a list of locations and type of sources from where water for	Identification of sources of construction water , availability of construction water	Contractor(s)	DSC / PIU	Regularly during construction phase	Contractor (s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		construction shall be extracted.  The Contractor(s) shall need to comply with the requirements of the State Ground Water Department for the extraction and seek their approval for doing so if needed, and submit copies of the permission to DSC. Although sub-project sites have not been listed in Notified ( where ground water extraction not allowed) and non Notified areas (where permission needed for extraction from district collector)					
7	Soil Erosion	Slope protection measures will be undertaken as per design to control soil erosion (especially at Trekking routes where railing works are planned and at Kanvashram site).	Protection locations towards valley side ( Hand Railing) and River side and Hill side at Kanvashram site	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)
8	Water Pollution	The Contractor(s) shall take all precautionary	Waste water discharge at	Contractor(s)	DSC/ PIU	Regularly during	Contractor(s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	from Construction Wastes	<p>measures to prevent entering of wastewater into local streams, and water bodies, during construction. For this it will be ensured that Septic tanks and soak pits are functioning properly at camp site especially at Kanvashram site as this site is very close to Malini River.</p> <p>Contractor(s) shall not wash his vehicles in local streams, water bodies and shall not enter river/ local streams bed for that purpose.</p> <p>Regular water quality monitoring of Malini River at Kanvashram construction site will be undertaken as per monitoring plan</p>	construction camps, Vehicle parking and washing areas			construction phase	
9	Water Pollution from Fuel and Lubricants	The Contractor(s) shall ensure that all construction vehicle parking locations, fuel/ lubricants storage sites, vehicle, machinery and equipment maintenance	Vehicle parking, refueling and washing areas	Contractor( s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		and refueling sites shall be located at least 500 m away from Malini River and other local streams close to sub-project sites.					
10	Soil Pollution due to fuel and lubricants, construction waste	The fuel storage and vehicle cleaning area will be stationed such that spillage of fuels and lubricants does not contaminate the ground. Soil and pollution parameters will be monitored as per monitoring plan.	Fuel and Lubricant storage areas, soil quality parameters	Contractor( s)	DSC / PIU	Regularly during construction phase	Contractor(s)
11	Generation of dust	The contractor(s) will take every precaution to reduce the levels of dust at construction sites.  All earthworks to be protected/ covered in a manner to minimize dust generation.	Air quality monitoring results, water sprinkling frequency	Contractor(s)	DSC /PIU	Regularly during construction phase	Contractor(s)
12	Emission from Construction Vehicles, Equipment and	All vehicles, equipment and machinery used for construction shall conform to the relevant Bureau of India Standard (BIS) norms. The discharge standards promulgated	Pollution under control certificates for vehicles and machinery	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)



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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	Machinery	under the Environment Protection Act, 1986 shall be strictly adhered to. The silent/quiet equipment available in the market shall be used in the sub-project sites.  The Contractor(s) shall maintain a record of PUC for all vehicles and machinery used during the contract period which shall be produced for verification whenever required.					
13	Noise Pollution	The Contractor(s) shall confirm that all Construction equipment used in construction shall strictly conform to the MoEFCC / CPCB noise standards and all Vehicles and equipment used in construction shall be fitted with exhaust silencers.  At the construction sites noisy construction work such as crushing, operation of DG sets, use of high noise generation equipment shall be	Noise under control certificates, noise monitoring results	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		<p>stopped during the night time between 10.00 pm to 6.00 am.</p> <p>Noise limits for construction equipment used in this project will not exceed 75 dB (A).</p>					
14	Material Handling at Construction Site(s)	<p>Workers employed on mixing cement, lime mortars, concrete etc., will be provided with protective footwear and protective goggles.</p> <p>Workers, who are engaged in welding works, will be provided with welder's protective eye-shields.</p> <p>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</p>	Records of availability of personal protective equipment ( PPE), training records for use of PPEs	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		maintained up to date by the Contractor(s).					
15	Disposal of Construction Waste / Debris / Cut Material	The Contractor(s) shall confirm that 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 sub-project sites indiscriminately. The waste will be disposed off as per spoil Management Plan (Annexure-8) to be prepared during construction phase.	Disposal sites, waste utilization records	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)
16	Safety Measures During Construction	Adequate safety measures for workers during handling of materials at site will be taken up.  The contractor(s) have to comply with all regulations for the safety of workers. Precaution will be taken to prevent danger of the workers from fire, etc. First aid treatment will be made available for all injuries likely to be	Safety training program records, availability of first aid kits and trained personnel	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		sustained during the course of work.  The Contractor will conform to all anti-malaria instructions given to him by the Engineer.					
17	Clearing of Construction of Camps and Restoration	Contractor to prepare site restoration plans for approval by the Engineer. The plan is to be implemented by the contractor(s) 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	Pre-construction records and photographs, disposal site rehabilitation	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)
18	Compensatory Tree Plantation at Kanvashram site	At the end of construction period compensatory tree plantation will be taken up to compensate for 36 trees to be cut at	Records of sapling plantation	Contractor	DSC/PIU	At the end of construction phase	Contractor executing works at Kanvashram site

Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		Kanvashram site. At least 108 saplings will be planted in vacant space. The species will be decided in consultation with Forest Department					
19	Environmental Monitoring	Environmental monitoring as per monitoring plan will be undertaken for all parameters specified for various environmental components	Environmental Monitoring Reports	Contractor(s)	DSC/PIU	Every quarter except monsoon season	Contractor(s)

**Table 26: Environmental Management Plan for Operation Phase**

Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
4.1	Ecological Impacts on Malini River at Kanvashram site and Mavakot and Kalalghati villages	The water discharge from Lake during periodic maintenance and cleaning will be regulated through valve chamber so that there is no excess velocity in river.  The silt from bottom of lake	Discharge from Lake to river during cleaning, silt quantity and its storage	PIU	Tourism department / PMU	During cleaning and maintenance of lake	PMU

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
		surface will not be disposed off to the River and it will be disposed off identified site.  The Malini River is at sufficient distance (>1 km from Mavakot and Kalalghati villages. No ecological impacts from the operations of facilities are anticipated.					
4.2	Environmental Monitoring	The periodic monitoring of the ambient air quality, noise level, water (both ground and surface water) quality, in the sub-project area as suggested in pollution monitoring plan through an approved monitoring agency.	Results of monitoring in respect of ambient air quality, water quality, noise levels, and soil quality and standards of ambient air quality, drinking water and ambient noise	PIU	Tourism department / PMU	Once a season (except monsoon ) for 2 years	PMU
4.3	Unhygienic conditions due to poor maintenance of sanitation	Tourism department will carry out maintenance of the toilet blocks at all sites, and carry out the regular	Maintenance schedule of sanitation	PIU	PMU	Every year during Tourist season	PMU

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Sl. No.	Parameters	Mitigation Measures	Parameter/ Indicator of Compliance	Responsible for Implementation	Responsible for Supervision	Frequency of monitoring	Source of Funds to Implement Mitigation Measures
	facilities and irregular solid waste collection	collection and disposal of wastes to a designated waste treatment sites close to sub-project sites. Waste water will not be discharged to Malini River at Kanvashram site. Septic tanks will be regularly emptied.	facilities				
4.4	Discharge of sanitation water	The waste water and floor washings from sub-project sites where facilities are being created will be diverted to septic tank and soak pits. The size of soak pits and septic tanks has been detailed in DPR and contract document.	Schedule of cleaning of soak pits and septic tanks and waste water management	Tourism Department through Temple Committee/Village Panchayat/ Specially Hire Agency	PIU/ PMU	Every year during Tourist Season	PMU
4.5	Compensatory Plantation maintenance at Kanvashram site	For first three years compensatory plantation will be monitored for survival. Assessment will be made before start of monsoon period and a minimum 95% survival will be ensured. Any deficiency observed will be made up through fresh plantation.	Survival rate of sapling prior to start of monsoon	Tourism Department through Village Panchayat/ Specially Hire Agency	PIU/ PMU	Every year during Tourist season	PMU

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

**Table -27** summarizes site- and activity-specific plans to be prepared as per EMP tables.

**Table 27: Site- and Activity-Specific Plans/Programs as per EMP**

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



## **2. Environmental Monitoring Plan**

147. 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 28**. 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 28: Monitoring Plan for Rural Tourism Sub-project**

Sl. No.	Field (Environmental Attribute)	Phase	Parameters to be Monitored	Locations	Frequency	Responsibility
1	Air Quality	During Construction Phase	CO, NO <sub>x</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , and SO <sub>2</sub>	At all villages/locations where physical infrastructure is planned for rural tourism (Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district - Total 10 locations)	Quarterly during construction phase except monsoon	Contractor(s)
		Operation Phase			Once during operation phase (first year)	PIU/PMU
2	Water quality	During Construction Phase	TDS, TSS, pH, Hardness, BOD, Faecal Coli form	Surface Water( Malini River at Kanvashram site) at other locations there are no surface water sources , Ground water at Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district (Total 10 ground water	Quarterly during construction phase except monsoon	Contractor(s)
		Operation Phase			Once during operation phase (first year)	PIU/PMU

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Sl. No.	Field (Environmental Attribute)	Phase	Parameters to be Monitored	Locations	Frequency	Responsibility
				samples)		
3	Noise Levels	During Construction Phase	Leq ( Day), Leq ( Night), Leq max, Leq Min,	At Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district ( Total 10 Locations)	Quarterly during construction phase except monsoon	Contractor(s)
		Operation Phase			Once during operation phase (first year)	PIU/PMU
4	Socio-economic monitoring	Income levels, livelihood options, especially on tourism	-	Once a year, for five years from the completion of the project	At locations of identified Rural Tourism villages	5 years
5	Compensatory Plantation Survival Monitoring (at Kanvashram site)	Survival rate of saplings planted as part of compensatory afforestation at Kanvashram site for first three years	Survey before start of monsoon (minimum 95 % survival to be ensured)	Once a year before start of monsoon for first three years	Compensatory plantation at Kanvashram	PIU/PMU

Note: The Construction phase in villages except Kanvashram may vary from 2-6 months.

### 3. Capacity Building

148. In addition to the primary objective of promoting and providing facilities for tourism at 13 locations, the current project has the scope for raising awareness about environmental conservation amongst tourists and local communities. Local knowledge about the topography and familiarity with the area may be further enhanced through training for skill up gradation of local communities enabling them to actively participate in the activities of sub-project. The project proposes to involve interested local people who will be gainfully employed in various capacities during tourist season. This would go a long way in protecting the richly endowed but fragile natural environment of the area and act as the harbinger for sustainable and balanced socio-economic development and environmental regeneration in the area.

149. The Environmental Specialist of the DSC and PMC will provide the basic training required for environmental awareness. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Program and the requirements of the project. The training would cover basic principles of environmental assessment and management; mitigation plans and programs, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in **Table 29** below.

**Table 29: Training Modules for Environmental Management**

Program	Description	Participants	Duration	Training Conducting Agency
<b>A. Pre-Construction Stage</b>				
Sensitization Workshop at PMU Dehradun	Introduction to Environment: Basic Concept of environment Environmental Regulations and Statutory requirements as per Government of India and ADB, and Environmental Issues in Rural Tourism Project	Tourism / Forest Department Officials, Environmental Specialist (ES) of the DSC/PMU/PIU and Contractors Managerial staff	½ Working Day	Environmental Specialist of the PMC
Session 1 (at Sub-project sites)	Introduction to Environment: Basic Concept of environment Safeguards Regulations and Statutory requirements as per Govt. of India and ADB Guidelines on Environmental considerations in planning, design and implementing	Contractor and DSC staff and PIU staff of the implementing agencies	1/2 Working Day	Environmental Specialist of the DSC

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Program	Description	Participants	Duration	Training Conducting Agency
	projects			
Session 2 (at Sub-project sites)	Environmental components impacted in construction and operation stages Activities causing pollution during construction and operation stages of sub-project- Rural Tourism Environmental Management, Environmental Provisions, Implementation Arrangements, Methodology of Assessment Good engineering practices to be integrated into contract documents	Contractor work force	¼ Working Day	Safeguards Specialist of the DSC
<b>B. Construction Stage</b>				
Session 3	Roles and responsibilities during Construction- Roles and Responsibilities of officials / contractors / consultants towards protection of environment Implementation. Introduction to Environmental Management Plan of Rural Tourism Project	Engineers and staff of line departments of the Government of Uttarakhand, and PMU/PIU (including the ES) and Contractor staff	¼ Working Day	Safeguards Specialist of the DSC
Session 4	Monitoring and Reporting System for safeguards in the project	Contractor and PIU staff deployed at Site	¼ Working Day	Safeguard Specialist of the DSC
Session 5	EHS requirements during construction	Contractor workers, PIU staff and DSC staff at sites	1/4 Day	Safeguard Specialist of the DSC

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

#### **4. Environmental Budget**

150. Most of the mitigation measures require contractors to adopt good site practices, which should be part of their normal procedures already, so there are unlikely to be major costs associated with compliance. Only those items not covered under budgets for

construction are included in the IEE budget. The IEE costs include mitigation, monitoring and capacity building costs. The environmental monitoring during pre construction phase has not been proposed as baseline monitoring has already been carried out during DPR and IEE report preparation. The summary budget for the environmental management costs for the sub-project is presented in **Table 30**.

**Table-30: Environmental Management and Monitoring Budget (INR)**

Environmental Component	Rate	Amount ( INR)
<b>Construction Phase (24 Months)</b>		
Air Quality monitoring (10 locations(Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district), Thrice a year; total 60 samples)	8,000	4,80,000
Water Quality Monitoring (one surface ( Malini River at Kanvashram site) and 10 ground water sampling locations (Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district), Thrice a year; Total 66 samples - 60 samples for Ground and 6 samples of surface water )	8,000	5,28,000
Noise Quality Monitoring (10 locations (Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district Thrice a year; 60 samples)	2500	1,50,000
Compensatory afforestation in 1:3 ratio for 36 trees to be cut at Kanvashram ( Plantation of 108 Trees)	1000	1,08,000
Training for Capacity Building of stakeholders	Covered in the consultancy cost of DSC/PMC	
Total Construction Phase EMP Cost		<b>12,66,000.00</b>
<b>O &amp; M Phase</b>		
Air Quality Monitoring (10 locations(Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district), once a year; total 10 samples) during first year	8000	80,000
Water Quality Monitoring (one surface ( Malini River at Kanvashram) and 10 ground water locations (Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district	8000	88,000

Environmental Component	Rate	Amount ( INR)
(Total 10 Locations) ), once a year during first year		
Noise Quality Monitoring {10 locations((Gajana, Chopariyal, Tipri, and Mukhem in Tehri district and Kanvashram, Kalalghati, Mavakot, Sendhi, Jaiharikhal and Kuthar in Pauri district ), once a year for first year	2500	25,000
Socio-economic monitoring (annually for 5 years)	Covered in Soft component of project	
Maintenance of compensatory tree plantation at Kanvashram site	120,000 per annum	360,000
Capacity Building Expenses (5 Sessions)	Covered in Soft component of project	
Total O&M Phase Environmental Management Cost		<b>5,53,000.00</b>
Total Cost ( Construction, Operation and maintenance phases)		<b>18,19,000.00</b>
Contingencies @ 5 %		<b>90,950</b>
<b>Total Budgeted EMP Cost</b>		<b>19,09,550</b>

## 5. Environmental Monitoring and Reporting

151. 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.

152. 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**

### **1. Process For Consultations Followed**

153. This sub-project 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 sub-project can be characterized as innocuous.

154. 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 sites. 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, Garhwal Mandal Vikas Nigam (GMVN), Forest Department, Police Department, and other Stakeholders and agencies in Tehri Garhwal and Pauri Garhwal districts.

155. 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; and
- To identify the environmental issues relating to the proposed activity.

156. During the consultations local residents and other stakeholders of sub-project area opined that there are limited tourism infrastructures in the region and the tourist inflow is minimal. The sub-project implementation will help improvement in infrastructures and publicity about the region. They demanded fast implementation of the sub-project. The dates of consultations and stakeholders consulted have been summarized below in **Table-31**. The views, comments and suggestions of stakeholders and their incorporation in project design are presented in **Table-32**. The records of consultations (list of participants with signatures) and consultation photographs are given in **Annexure-8**.



**Table-31: Dates and Stakeholders Consulted**

Place of Consultations	Date of Consultations	Participants	Number of Participants
<b>A: Tehri Garhwal District</b>			
Gajana	20/04/2016 and 22-09-2016	Village Panchayat, Villagers, Forest Officials, shop owners	10
Chopariyal	05/02/2016	Village Panchayat, Villagers, shop Keepers	25
Arakot	20/04/2016 and 22-09-2016	Village Panchayat, Local Villagers, shop keepers	12
Chokhala	20/04/2016 and 22-09-2016	Village Panchayat, , Local Villagers, shopkeepers	10
Tipri	21/04/2016, 07-09-2014 and 19-09-2016	Village Panchayat, Tehri District Tourist officers, Local Villagers	8
Uthar	21/04/2016 and 19.09.2016	Villagers, village Panchayat, Forest Officials	7
Mukhem	05/03/2017	Forest Officials, visitors, local people, Village Temple committee	6
<b>B: Pauri Garhwal District</b>			
Kanvashram	20/12/2016	Village Panchayat, Tehri District Local Villagers, Forest officials and Irrigation Department	5
Kalalghati	15/03/2016, 08-09-2014 and 24-09-2016, 24/11/20216	Village Panchayat, Local Villagers,	34 & 14
Mavakot	15/11/2016	Village Panchayat and local villagers	6
Sendhi	19/03/2016 and 20-09-2016	Village Panchayat and local villagers	10

Jaiharikhal	29/11/2016	Village Panchayat local villagers, shopkeepers, NGO and Hotel owners	15
Kuthar	17/03/2016	Village Panchayat, shopkeepers, and local villagers	10

**Table 32: Views, Comments and Suggestions of Stakeholders and Addressable in Project Design**

<b>Issues discussed</b>	<b>Suggestions and Views</b>	<b>Consideration in Project Design</b>
<ol style="list-style-type: none"> <li>1. Sub-project details, project benefits, project related proposed infrastructure, facilities, and livelihood opportunities, through tourism activities, sanitation facilities, waste water, air pollution and noise pollution during construction, etc.</li> <li>2. Improvement of infrastructure like W/S, SWM, Solar Lighting, etc.</li> <li>3. Project related capacity building program, livelihood training programs etc.</li> <li>4. Management of sub-project infrastructure facilities</li> </ol>	<ol style="list-style-type: none"> <li>1- Villagers at most of the locations demanded for lighting and sanitation facilities at most of the locations.</li> <li>2 Forest officials welcomed the project and informed that the Kanvashram site project was to be implemented by the Irrigation department and informed that stage-1 clearance under Forest (Conservation), 1980 has been given.</li> <li>3- Railing at trekking route were demanded at Gajana and Sendhikhal</li> <li>4- The villagers at Kalalghati demanded improvement in water supply to the village and demanded pathway.</li> <li>5- Toilet blocks were demanded at Tipri, Kalalghati, Mavakot( at Mela ground), Jaiharikhal and Kuthar( at Mela ground)</li> <li>6- All participants demanded for quick implementation of project</li> <li>7- Participants suggested for safe design of facilities so that these are not washed away in monsoon.</li> <li>8- The participants suggested that to make rural tourism success enough budget for publicity should be kept</li> </ol>	<ol style="list-style-type: none"> <li>1- Water supply pipeline planned at Kalalghati.</li> <li>2- Toilet blocks with Septic tank and soak pits planned at Tipri, Kalalghati, Mavakot, Jaiharikhal and Kuthar.</li> <li>3- Railing planned at Gajana and Sendhikhal</li> <li>4- It was explained that capacity building of locals will include training cum production centers at Chopariyal, Kuthar and Mavakot villages and training on skills such as housekeeping, cooking and food handling, crowd management during disaster, trekking, packaging of local produce, organic farming and ancillary services such car driving and small eateries ( Dhaba) management</li> <li>5-Explained that design will take care of safety measures.</li> <li>6- Solid waste bins have been planned at almost all locations to take care solid waste collection.</li> <li>7-Solar Lighting has been planned at all locations.</li> </ol>

157. It is clear that most of the suggestions of stakeholders have been taken care in the project design.

## **2. Future Consultation And Information Disclosure**

158. To ensure continued public and stakeholder participation in project life cycle regular consultation is proposed. A grievance redressal cell will be set up within the PIU Kotdwara 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 sub-project location, an extensive project awareness campaigns will be carried out.

### **Information disclosure**

159. 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 by paying cost of photocopy from the office of the PMU/PIU, on a written request.

160. 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.

### **Public Consultations Records**

161. The public consultation records showing list of participants, contact number, signature and photographs of consultations are given in **Annexure 8**.

## **3. Grievance Redress Mechanism**

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

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

### **Composition and functions of GRC**

**Local Grievance Committee. (LGC)** – The local LGC (at individual sub-project sites) will comprise of an NGO representative, Line Agency, representative of Gram Panchayat, Special invitee, etc. This will be constituted by PIU in consultation with village Panchayat.

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

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

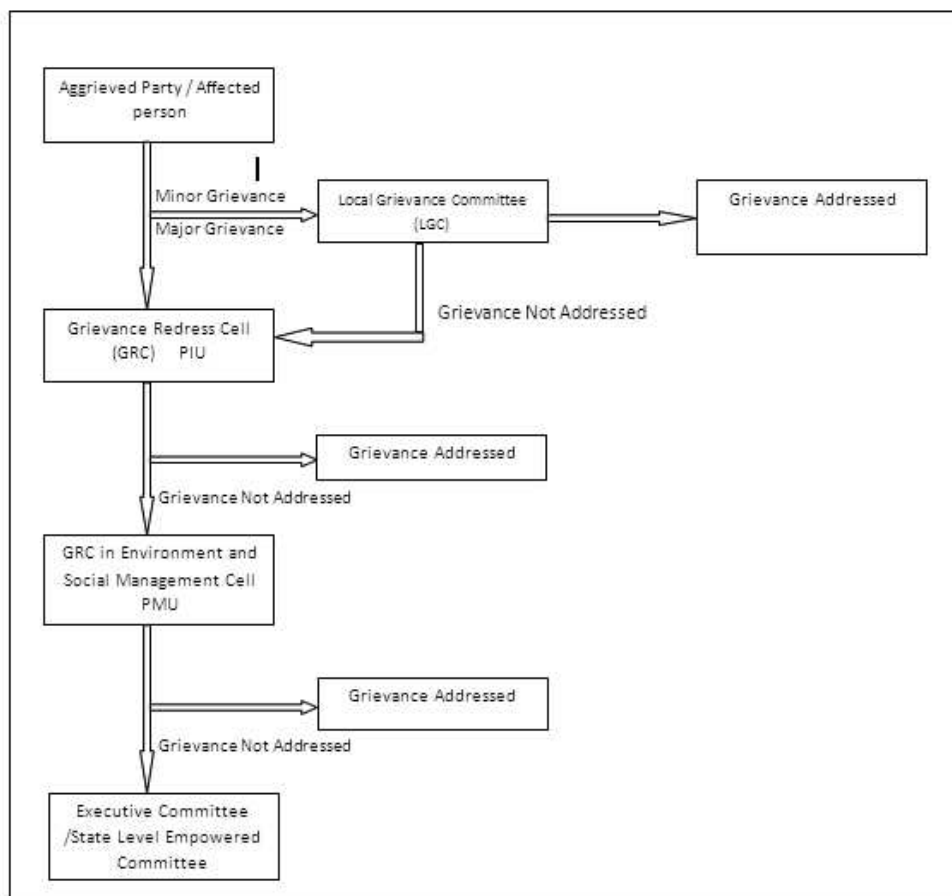
### **Approach to GRC**

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

- (a) Web based: A separate corner will be developed at the program website so that public / community/ affected person can register their complaint in the online column.
- (b) Telecom based: A telephone number shall be notified by the PMU/ PIU so that general public can register their complaint through telephone / mobile phone to the PIU/PMU office.
- (c) Through implementing NGO: The local representative of the NGO appointed for the purpose will collect the problems & issues of the community or affected person and pass on the same to PIU / PMU.
- (d) The format for writing complaints in written format has been given in **Annexure-9**. The grievance redress mechanism has also been shown in **Figure-10** below.

**Figure 10: Grievance Redress Mechanism in IDIPT, Uttarakhand**

**GRIEVANCE REDRESS MECHANISM (IDIPT-Uttarakhand)**



Note:

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

## VII. FINDINGS AND RECOMMENDATIONS

163. The proposed sub-project 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 sub-project will enhanced 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.

164. This IEE has identified minor likely impacts on water, air and noise during construction and operation period and has defined mitigation measures for adverse impacts. 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 improvement pathways, lighting, solid waste collection facilities, etc. at locations of rural tourism will make better environmental conditions and minimize the pollution related impacts.

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

## **VIII. CONCLUSIONS**

166. 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.

167. In conclusion, 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.

168. Based on the findings of the IEE, the classification of the sub-project 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

#### Instructions:

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

**Country/Project Title:**

India/IDIPT (Loan No. 3223- IND)

**Sector Division:**

SAUD

Screening Questions	Yes	No	Remarks
<b><u>A. PROJECT SITING</u></b>			
<u>IS THE PROJECT AREA ADJACENT TO OR WITHIN ANY OF THE FOLLOWING ENVIRONMENTALLY SENSITIVE AREAS?</u>			
▪ <u>CULTURAL HERITAGE SITE</u>	√		One site of sub-project namely Kanvashram is close to ancient temple. Although this is not declared cultural heritage sites but this temple is culturally very important. Owing to this, Kanvashram site has been included in the Rural Tourism project.
▪ <u>LEGALLY PROTECTED AREA (CORE ZONE OR BUFFER ZONE)</u>		√	None of the sub site is located in Legally Protected Areas (Core Zone or Buffer zone).



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Screening Questions	Yes	No	Remarks
▪ <u>WETLAND</u>		√	None of the sub-project site is close to wetland
▪ <u>MANGROVE</u>		√	Not applicable
▪ <u>ESTUARINE</u>		√	Not applicable
▪ <u>SPECIAL AREA FOR PROTECTING BIODIVERSITY</u>		√	No specific area for protection of Biodiversity, but all sites being in hilly region rich in flora.
▪ <u>BAY</u>	√		Not Applicable
<b>B. <u>POTENTIAL ENVIRONMENTAL IMPACTS</u></b> <b><u>WILL THE PROJECT CAUSE...</u></b>			
▪ Impairment of historical/cultural areas; disfiguration of landscape or potential loss/damage to physical cultural resources?		√	The project activities at any of the sub-project sites will not lead to disfiguration of landscape or damage to physical cultural resources
▪ Disturbance to precious ecology (e.g. sensitive or protected areas)?		√	The project activities will not cause any disturbance to precious ecology as all facilities have been planned in villages. At Kanvashram site (being in reserved forest) there are no endangered species of flora and fauna and clearance has been obtained from the statutory authorities.
▪ Alteration of surface water hydrology of waterways resulting in increased sediment in streams affected by increased soil erosion at construction site?		√	The project related structures are not planned near water bodies (except for Kanvashram site) and planned facilities activities are of small magnitude, therefore, no impacts on hydrology are anticipated. The Kanvashram site is close to Malini river. A retaining wall of sufficient height has been planned at this site. The sub-project activities planned in a hilly terrain may lead to minor soil erosion at construction sites. But sites being sufficiently away from water courses, therefore, construction activities will not lead to increased sediment in streams.

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Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?</li> </ul>		√	The deterioration of surface water quality due to silt run off and sanitary wastes from worker based camps and chemicals not anticipated as all sites are away from surface water sources. The construction camps will be suitably located to minimize any impacts due to sanitary wastes. The construction camps will also have sanitation facilities. The storage of construction materials will be away from Malini River.
<ul style="list-style-type: none"> <li>Increased air pollution due to project construction and operation?</li> </ul>	√		There will be minor air pollution generation during construction stage due to material handling, storage and transport as well as due to functioning of DG sets at camp and construction sites of rural tourism locations. But this air pollution will be limited during construction phase only. During operation phase there will be generation of vehicular emissions due to movement of vehicles of tourists and pilgrims in the project influence area.
<ul style="list-style-type: none"> <li>Noise and vibration due to project construction or operation?</li> </ul>	√		No vibration generation, but minor noise generation during construction due to construction activities and movement of construction vehicles and machinery. During operation phase noise related impacts will be due to movement of vehicles of tourists and pilgrims.
<ul style="list-style-type: none"> <li>Involuntary resettlement of people? (physical displacement and/or economic displacement)</li> </ul>		√	None of the site under consideration for Rural tourism involves involuntary resettlements.
<ul style="list-style-type: none"> <li>Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?</li> </ul>		√	There will be no adverse impact on poor, women, children or vulnerable group. There will be positive impact as locals will have business opportunity to sell local produce during visits of tourists to the sub-project areas. The locals will also direct and indirect employment.

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Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>Poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?</li> </ul>		√	No such impacts are anticipated. Due care for solid waste collection, transport and disposal shall be taken. Communicable diseases transmission not anticipated because sub-projects are of small nature and work force is anticipated to be local.
<ul style="list-style-type: none"> <li>Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?</li> </ul>		√	No such impacts are anticipated as project sites are on hilly terrain which has swift drainage; hence no chances of water impoundments near the construction sites. During operation phase also no such issues are anticipated.
<ul style="list-style-type: none"> <li>Social conflicts if workers from other regions or countries are hired?</li> </ul>		√	Social conflicts are not anticipated as works to be executed are of small nature and contractor will employ locally available work force.
<ul style="list-style-type: none"> <li>Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?</li> </ul>		√	No large influx of population during the construction is anticipated as project activities are spread at 10 locations for infrastructure creation and 3 locations for software components. Contractors will employ local work force.  During operation phase there will be influx of tourists, but this will not affect local social infrastructure because project will create infrastructure for the anticipated tourists flow.
<ul style="list-style-type: none"> <li>Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?</li> </ul>		√	During construction necessary protection measures will be taken up to avoid occupational safety and health risks to the construction workers. During the operation phase planned sanitation facilities at all sites will avoid health and safety risks. No chemical, biological or radiological hazards are anticipated during the construction and operation phases.

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Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> <li>Risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?</li> </ul>		√	No risks to community health and safety are anticipated adequate precautions will be taken by the Design and Supervision Consultants and EMP monitoring and implementation will be effective. During operation phase no such hazards are anticipated.
<ul style="list-style-type: none"> <li>Community safety risks due to both accidental and natural causes, 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?</li> </ul>		√	The project related structures to be constructed are small in nature. Accidental hazards will be handled as part of management of tourists movements. The natural hazards such as earthquake or heavy rainfall, floods, etc. will be handled as part of Disaster Management Plan preparedness.
<ul style="list-style-type: none"> <li>Generation of solid waste and/or hazardous waste?</li> </ul>		√	The project plans provisions for collection, handling and disposal of solid waste at locations of sub-project. This waste will be disposed off as per provisions of Municipal Waste (Management and Handling) Rules 2000. No hazardous waste generation is anticipated during operation phase.
<ul style="list-style-type: none"> <li>Use of chemicals?</li> </ul>		√	The project will not use chemicals.
<ul style="list-style-type: none"> <li>Generation of wastewater during construction or operation?</li> </ul>		√	The waste water generated during construction will be collected and diverted to septic tanks/ soak pits. During operation phase there will be proper arrangement for waste water collection and disposal as toilet blocks have been proposed at sites of sub-project as part of facilities.

### A Checklist for Preliminary Climate Risk Screening

**Country/Project Title:** India/IDIPT (Loan No. 3223- IND)

**Sector:**

**Subsector:** SAUD

**Division/Department:**

Screening Questions		Score	Remarks
<b>Location and Design of project</b>	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	2	Project sites are going to be affected due to extreme weather related events at Kanvashram site is close to river and other sites are in hilly area..
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?	1	Yes, one site in the sub-project is close to Malini River. The retaining wall design and design of other components of project at this location need to take into consideration peak river flow.
<b>Materials and Maintenance</b>	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	0	No project inputs are likely to be affected
	Would weather, current and likely future climate conditions, and related extreme events likely	1	Yes, maintenance of project related

Screening Questions		Score	Remarks
	affect the maintenance (scheduling and cost) of project output(s)?		facilities will be affected due to weather conditions.
<b>Performance of project outputs</b>	Would weather/climate conditions and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	2	Yes, tourists flow will be affected due to weather conditions.

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

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

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

**Annexure-2 Environmental Selection Criteria (as per EARF table 6)**

<b>Component</b>	<b>Criteria</b>	<b>Remarks</b>
Overall selection criteria	1. Will be fully consistent with management plans or master plans for the area	There are no specific Management plans or master plans for the locations selected for Rural Tourism. These sites are in Rural areas. But, all sub-project sites are popular destination either for scenic beauty or for religious tourism, therefore, have tremendous potential for Rural tourism. Keeping religious importance and popularity of locations in mind the sub-project sites have been selected for provision of infrastructure facilities, for the convenience of visitors and to promote tourism in Tehri and Pauri Garhwal districts.
	2. Will avoid resettlement/relocation. If unavoidable the extent of resettlement will be minimized.	No such impact anticipated
	3. Will not result in destruction of or encroachment onto protected areas, including National Parks, Sanctuaries, Conservation Reserves and Community Reserves, environmentally sensitive zones and Biosphere reserves.	All the sub-project sites are out of core and buffer zones of National Parks located in Uttarakhand State. There is no encroachment on National Park land for the sub-project related activities. The location of one sub-project site (Kanvashram) is in Reserved Forest Area. For this site Forest Clearance has been obtained as per provisions of 'The Forest (Conservation) Act', 1980.
	4. Will be in line with the Conservation Plan/management plan for the conservation and management of the Protected areas	<i>For all sub-project sites this is not applicable.</i>
	5. Will promote tourism related activities in protected areas, in the zones earmarked for tourism development, the scale and extent of which shall be in line with the provisions in the Management Plan	Not Applicable, as the sub-project sites are located outside National Park in Rural Areas. Hence project related activities will promote tourism in Rural areas of Tehri Garhwal and Pauri Garhwal districts.

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Component	Criteria	Remarks
	<b>6.</b> 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	The Rural Tourism sub-project sites are not close to any Archaeological site notified by State Archaeology Department or Archaeological Survey of India (ASI).
	<b>7.</b> Will not involve major civil works within the prohibited and regulated areas, as defined in the ASI regulations, to minimize any potential impacts on safety to the structures/ monuments	Yes, creation of Tourism Infrastructure facilities at identified rural tourism sites will not involve any major works within prohibited or regulated areas as no ASI notified monument/heritage site exists in the vicinity.
	<b>8.</b> 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. These have been detailed in IEE report.
	<b>9.</b> 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 sites. There are no cultural heritage sites in the vicinity of sub-project sites.
	<b>10.</b> 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 plans at Kanvashram site will have only native species.
	<b>11.</b> 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 have been made in the project design and environmental monitoring planned in O&M phase. The O&M responsibility will be entrusted to the executing department to ensure environment management sustainability.
	<b>12.</b> Will reflect inputs from public consultation and disclosure for site selection	Inputs from major stakeholders like District Authorities, Village Panchayats Temple Committees, state forest department, District Tourism Department and local population residing close to sub-project sites have been incorporated in the designs and



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Component	Criteria	Remarks
		planning. These have been detailed in IEE report.
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.	The construction works will not alter any portion of existing buildings, temples or any other structures at the identified sub-project sites. These sites are away from cultural properties.
	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 sites in vicinity of identified sites of Rural Tourism, therefore, this is not applicable
	15 Will ensure that intervention be minimal. Every intervention proposed shall have clear objectives and use tried and proven methods and materials.	The sub-project works are not close to any protected monuments/structures. Designs are in sync with the architectural character of the surroundings.
	16 Will ensure that physical remains are conserved in their historic condition without loss of evidence. Respect for the significance of the physical remains must guide any restoration. Technical interventions should not compromise subsequent treatment of the original fabric. The results of intervention should be unobtrusive when compared to the original fabric or to previous treatments, but still should be distinguishable	Not applicable because the Rural Tourism sub-project sites are 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	
	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 Tourism facilities at sub-project sites will not have any impact traditional technology and craftsmanship. On the contrary will promote sale of the articles made by the local people.
	19. Will ensure that the setting of a heritage site be conserved. Natural and cultural landscapes that form part of a sites setting contribute to its significance and should be integrated with its conservation	Not Applicable
	20. Will ensure that during archaeological excavation care be taken to conserve the	Not Applicable

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Component	Criteria	Remarks
	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	
	21. Will ensure that treatment of the cultural heritage site and its environs is a comprehensive measure to prevent damage from natural processes and human actions, to reveal the historic condition of a site, and to allow its rational use.  Service building should be as far as possible from the principal area of the site. Landscaping should aim to restore the site to its historic state and should not adversely affect the site: contemporary gardening and landscape concepts and designs should not be introduced.	Not Applicable
Conservation and habitat protection measures- in and around the natural heritage assets and protected areas.	22. Will observe the principle of not adversely impacting the habitat quality of the protected area and shall involve treatment of damage caused by natural processes and human actions and prevention of further deterioration, using both technical and management measures.	Not Applicable as all sites of sub-project are away from protected areas.
	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.	Not applicable
	24. Will not open up new areas of tourist movement, including opening up of new routes for boating in wetlands etc, especially in areas identified as core or zone identified for conservation in the management plan for the protected area.	The sub-project will not open any new routes for tourists in core zone or buffer zone of National Parks.
	25. Will ensure that the areas of significant habitat diversity habitats are conserved in their natural condition.	Not Applicable as sites away from protected areas.
	26. The results of intervention should be unobtrusive when compared to the original fabric or to previous treatments, but still should be distinguishable	Not Applicable as sites away from protected areas.
	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.	Not Applicable
Water supply	29. Will be taken up from existing potable	The water requirement for all sites

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Component	Criteria	Remarks
	treatment systems nearby, unless no such systems are available in the vicinity.	has been estimated and as part of project design. Existing water supply infrastructure will be improved at some of the sites. The water will be obtained from local supply at all locations except at Kanvashram. At Kanvashram water will be obtained from bore wells or from canal for filling of artificial lake. There will be necessary testing for the water quality and if needed local treatment for water supply shall be provided at all locations of Rural Tourism sites.
	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 planned water supply infrastructure and bore wells at Kanvashram will be used only when there is no water in the canal.
	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 any impacts on existing water supply sources as waste water from the sub-project sites will not be discharged outside. For the waste water disposal, septic tanks and soak pits have been planned as part of Toilet block construction during construction and operation phases.
	33. Will ensure proper and adequate treatment and disposal facilities for increased volumes of wastewater generation	Not much waste water generation envisaged. Septic tanks/soak pits of sufficient capacity are proposed at toilet blocks planned.
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	The locations of Septic tank at sub-project sites will be finalised at lower level. The design of the septic tanks has been done to ensure that there is a difference of at least 1.5m between the bottom bed of the septic tank and the maximum ground water level, to avoid any contamination of ground water. The

Component	Criteria	Remarks
		sub-project sites being on hill have a very low ground water potential.
	35. Will ensure that sanitation improvements proposed do not result in pollution of groundwater.	The design of the septic tanks for the sub-project sites has been done to ensure that there is a difference of at least 1.5m between the bottom bed of the septic tank and the maximum ground water level, to avoid any contamination of ground water. Further, Environmental Management and Monitoring Plan (EMMP) have been prepared and these will ensure no impact on ground water quality. The septic tanks will be emptied regularly.
	36. Will not interfere with other utilities and block access to buildings, cause nuisance to neighboring 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/soak pits of adequate capacity have been designed. During construction phase also adequate sanitation facilities with septic tank/soak pits will be provided at construction camps of all sites of the Rural Tourism sub-project.
	38. Will not cause overflows and flooding of surroundings, especially around the heritage sites with raw sewage.	Proposed septic tanks/ soak 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 local PIU. If the sub-project is to be managed through PPP operator or Village Panchayats then PIU will ensure that the septic tanks are cleaned every quarter. For the septic tank cleaning arrangement will be made with the local municipal authorities at Tehri/Pauri. 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	39. Will ensure that the disposal of solid	There is provision of waste

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Component	Criteria	Remarks
management	wastes will not result in degradation of aesthetics in the vicinity of the proposed tourist areas	segregation at source through separate Bio-degradable and Non-Biodegradable Waste bins and suitable disposal arrangements. The organic waste will be used for compost production. The inorganic waste will be disposed off in consultations with local civic authorities/village Panchayat.
	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 with native species along the access roads/paths to the sub-project sites.
	41. Will ensure that for composting pits for protected areas, the locations are devoid of any wildlife population, especially wild boars, porcupines	Not Applicable
	42. Will ensure any on site waste management done in compliance with government regulations and in coordination with municipal authorities.	It will be ensured that solid waste is disposed off as per provisions of Solid Waste Management Rules 2016.
Roads	43. Will ensure minimal clearing of vegetation	Sites being in rural habitations are 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.
	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. No new road construction is planned as part of project. There will be improvement of only existing roads.
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
	47. Will ensure adequacy of outfall of proposed drainage works, to avoid any impacts associated with flooding in downstream areas, or areas not covered	Not Applicable
	48. Will ensure effective drainage of the monument area, and provide for improved structural stability of the monuments	Not Applicable
Development of parking	49. Will ensure no deterioration of surrounding environmental conditions due to	Any new growth or expansion will be within the regulations of Uttarakhand

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Component	Criteria	Remarks
and other tourist infrastructure amenities	<p>uncontrolled growth around these facilities, increased traffic and increased waste generation resulting from improved infrastructure facilities.</p> <p>50. Will not create structures or buildings that are physically or visually intrusive, in terms of size, scale, location that shall have an adverse impact on the aesthetic quality or the site, through careful designs in terms of built form, construction materials etc.</p>	<p>Tourism Development Board and local Civic authorities/ Village Panchayat. The parking facilities for the sub-project sites have been planned within the Land owned by the Government of Uttarakhand. Hence there will be no impact on existing traffic on account of operation of sub-project. The sub-project will have a well-planned solid waste collection and disposal system.</p> <p>Not envisaged. Project shall add to the aesthetic beauty of the site and enhance the visitor experience.</p>



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दिनांक: 17.5.2016

संख्या ३

अथ मन्त्राणां सूत्रम् ।

उत्तराखण्ड राज्य शासन, नवलखण्ड नगर

उद्भवादनम् ।

विषय: जनपद-मोडी में जलवायुम का सर्वेक्षण तथा इससे प्राप्त हुए 3,074 हे० वर्ग भूमि का वर्गीकरण विधान का प्रकाशन।

କାର୍ଯ୍ୟ: ପ୍ରକୃତ ସ୍ଥଳ ସମ୍ବନ୍ଧୀୟ କାର୍ଯ୍ୟ ସମ୍ପର୍କରେ ସମୀକ୍ଷା- 3118 FPUK/OTHERS 13452/2015 ବିଷୟ  
 19.04.2016

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प्रस्तावित प्रकरणों में इन कार्यालयों से सम्बन्धित पत्र दिनांक-25.02.2016 द्वारा कैबिनेटिक स्वीकृति प्रदान की गयी थी जिसमें उल्लिखित शर्तों की अनुमतिना अथवा प्रमुख वन कार्यपालक को इष्ट अभिवृत्ति, कलमबद्ध या उपर्युक्त शर्तों पर कुछ प्रत्युत की गयी है। सरल मन्त्रालय के प्रस्ताव पर उपर्युक्त शिष्टाचार के अन्तर्गत कुछ यह सुनिश्चित करने का निर्देश हुआ है कि केन्द्र सरकार, जनपद-जनपद-होटी में वन्यप्रायण का संरक्षण एवं शीत विमान हेतु 3,000 ई० घन भूमि के पर्यटन विमान को प्रभावपूर्ण रूप से विविध स्वीकृति निर्माणोपरा शर्त पर प्रदान कराया है:-

- [illegible]

दिलीप / रमेश  
 अमर विद्यालय / मु. नारायण  
 20, सहायपुरी, काठमाडौं  
 भद्रा 2073  
 Sushaf  
 23.5.2016

- [illegible]

७/८  
भारतीय  
रुपिया  
(संविधान अनुसार)  
उप वन संरक्षण

प्रतिलिपि सूचनाार्थ एवं आवश्यक कार्यवाही हेतु :-

1. जयपुर वन महानिदेशक (रिक्तस्थान)। पञ्जाब, जैन एवं जैनधर्म परीक्षा के तहत, इन्डिया पर्यावरण मंत्रालय, जयपुर में आयोजित। नई दिल्ली।
2. जयपुर वन महानिदेशक एवं जयपुर परीक्षा के तहत, इन्डिया पर्यावरण मंत्रालय, जयपुर में आयोजित। नई दिल्ली।
3. आदेश पत्रिका।

0/c  
हरिता  
(हरिता कुमारी)  
उप वन संरक्षण









**Infrastructure Development Investment Program for Tourism, Uttarakhand (IDIPT: Tranche III)**  
**Initial Environmental Examination**  
**Development of Rural Tourism Infrastructure in Pauri and Tehri District**

**Annexure-3A Letter To Irrigation Department**

 Govt. of Uttarakhand	<b>Program Implementation Unit</b> <i>Infrastructure Development Investment Program for Tourism</i> <i>(ADB Aided - Loan No. 2653/India)</i> <b>Government of Uttarakhand</b> Flush Door Factory, Near Kauriya, Kandi Road, Kotdwara Dist. - Pauri Garhwal (Uttarakhand) - 246140	 Uttarakhand <i>Devlopy "Nimant"</i>
Tel: 91-1362-229685, 8191395033		E-mail: <a href="mailto:piuidpt.kotdwara@gmail.com">piuidpt.kotdwara@gmail.com</a>
Ref No. /PIUKotdwaraIDIPT/ADB/2015-16/ 665		Date: - 22 Oct, 2016.
To,		
The Executive Engineer, Irrigation Department, Division Office- Dugddi.		
Subject: Soft Reminder with Ref. No. PIU Kotdwara/IDIPT/ADB/2015-16 /618, Dated 14.09.2016 on "Development of Rural Tourism Infrastructure in Pauri Garhwal & Tehri Garhwal District" Sub-Project.		
Dear Sir,		
<p>With reference to the above cited subject, I would again humbly reminding you that detailed cost estimate &amp; drawing was handed over by us to you and Mr. Gusain, A.E and discussed personally by DSC members in September.</p> <p>As a update you may be aware that due to Hon'ble Minister's persuasion and our senior officials intervention, the DPR is almost finalized except taking up your comments/feed back on Drawing/Estimate of lake structure and Protection work. It is to be specially mentioned that we require your consult for taking up water from upper side canal (right side of lake area) as alternative source beside bore well. Please take up this issue as important task and extend your earliest support to this project.</p>		
Thanking you.		
<p>Yours sincerely  Anil Bhargava (Project Manager) PIU, Kotdwara, IDIPT.</p>		
CC to: i) Mr. Raghuvir Gusain, Assistant Engineer, Irrigation Department, Sub-Division-III, Kotdwara. ii) Additional Program Director, PMU, IDIPT, UTDB, for your kind information. iii) Nodal Officer, PMU, IDIPT, UTDB, for kind information. iv) Team Leader, DSC, IDIPT, for your kind information.		







## Annexure-4 Rural Tourism Sites- Photographs

### Tehri District

	
<b>Arakot Village</b>	
	
<b>Chokhala Village</b>	
	
<b>Chopariyal Village</b>	

<b>Gajana Village</b>	
<b>Tipri Village2</b>	
<b>Uthar Village</b>	
<b>Mukhem Village</b>	

## Pauri District

	
<b>Kanvashram Temple</b>	<b>Location for Lake</b>
	
<b>Mavakot Fair Ground</b>	<b>Temple at Mavakot</b>
	
<b>Kalalghati Village</b>	



**Jaiharikhal Village**



**Sendhikhal Village**







**Kuthar Village**

## Annexure-5 Baseline Environmental Monitoring Photographs





### Location 1: Kanvashram, District Pauri Garhwal

	
<p style="text-align: center;"><b>Ambient Air Quality Monitoring</b></p>	<p style="text-align: center;"><b>Ground Water Quality Monitoring</b></p>
	
<p style="text-align: center;"><b>Ambient Noise Quality Monitoring</b></p>	<p style="text-align: center;"><b>Surface Water Quality Monitoring</b></p>

**Location 2: Kalalghati, District Pauri Garhwal**




	
<b>Ambient Air Quality Monitoring</b>	<b>Ground Water Quality Monitoring</b>
	
<b>Ambient Noise Quality Monitoring</b>	<b>Surface Water Quality Monitoring</b>

**Location 3: Mavakot, District Pauri Garhwal**




	
<b>Ambient Air Quality Monitoring</b>	<b>Ground Water Quality Monitoring</b>
	
<b>Ambient Noise Quality Monitoring</b>	<b>Surface Water Quality Monitoring</b>






**Location 4: Jaiharikhal, District Pauri Garhwal**

	
<p style="text-align: center;"><b>Ambient Air Quality Monitoring</b></p>	<p style="text-align: center;"><b>Ground Water Quality Monitoring</b></p>
	
<p style="text-align: center;"><b>Ambient Noise Quality Monitoring</b></p>	




**Location 5: Sendhikhal, District Pauri Garhwal**

	
<p style="text-align: center;"><b>Ambient Air Quality Monitoring</b></p>	<p style="text-align: center;"><b>Ground Water Quality Monitoring</b></p>
	
<p style="text-align: center;"><b>Ambient Noise Quality Monitoring</b></p>	




**Location 6: Kuthar, District Tehri Garhwal**

	
<b>Ambient Air Quality Monitoring</b>	<b>Ground Water Quality Monitoring</b>
	
<b>Ambient Noise Quality Monitoring</b>	


**Location 7: Gajana, District Tehri Garhwal**

	
<b>Ambient Air Quality Monitoring</b>	<b>Ground Water Quality Monitoring</b>
	
<b>Ambient Noise Quality Monitoring</b>	




**Location 8: Chopariyal, District Tehri Garhwal**

	
<b>Ambient Air Quality Monitoring</b>	<b>Ground Water Quality Monitoring</b>
	
<b>Ambient Noise Quality Monitoring</b>	

**Location 9: Tipri, District Tehri Garhwal**

	
<b>Ambient Air Quality Monitoring</b>	<b>Ground Water Quality Monitoring</b>
	
<b>Ambient Noise Quality Monitoring</b>	

**Location 10: Mukhem, District Tehri Garhwal**

	
<b>Ambient Air Quality Monitoring</b>	<b>Ground Water Quality Monitoring</b>
	
<b>Ambient Noise Quality Monitoring</b>	

Annexure-6 NOC from Village Panchayats

**कीरत सिंह नेगी**  
ग्राम प्रधान  
ग्राम पंचायत लछमपुर  
कोटद्वार, गढ़वाल (उत्तराखण्ड)

निवास :  
ग्राम-मानपुर, पो.ओ. कलालघाटी  
कोटद्वार, गढ़वाल (उत्तराखण्ड)  
मो 9012798002


पत्रांक : ..... दिनांक : 24-9-2016

अनापत्ति प्रमाण-पत्र

जामौन पर्यटन स्वरोपजा मोहन के अर्जित पर्यटन विकास हेतु  
स्वै जामौन आधारभूत सुविधाओं हेतु विभिन्न निर्माण जो कि  
निम्न प्रकार के हैं।

1. शौचालय परिसर
2. पत्र का पानी के लिए पाइप लाइन की व्यवस्था
3. सौर ऊर्जा की व्यवस्था
4. कचरा प्रबंधन की व्यवस्था

भारत उपरोक्त निर्माण कार्य हेतु जो भी ग्राम की आवश्यकता होगी  
वह ग्राम पंचायत द्वारा उपलब्ध करा दी जायेगी एवं इन कार्यों के  
लिए ग्राम पंचायत अनापत्ति प्रमाण-पत्र प्रदान करती है।





अध्यक्ष, प्रधान ग्राम पंचायत संघ,  
विकासखण्ड - दुगड्डा, पौड़ी गढ़वाल  
सुरेश सिंह रावत  
प्रधान, ग्राम पंचायत  
मवाकोट

मो0-9917207075  
ग्राम व पो0 - मवाकोट, कोटद्वार  
पौड़ी गढ़वाल (उत्तराखण्ड)

पत्रांक

दिनांक 24/09/2016

अनापत्ति प्रमाण-पत्र

ग्रामीण पर्यटन स्वरोजगार योजना के तहत पर्यटन विकास हेतु एवं ग्रामीण आधारभूत सुविधाओं हेतु विभिन्न निर्माण जो कि निम्न प्रकार हैं:-

1. सह उत्पादन प्रशिक्षण केन्द्र
2. पथ प्रकाश हेतु सौर लार्डेट
3. कुचरा प्रबन्धन की व्यवस्था
4. सड़क सफाई बोर्ड

अतः उपरोक्त निर्माण कार्य हेतु जो भी भूमि की आवश्यकता होगी वह ग्राम पंचायत द्वारा उपलब्ध करा दी जायेगी, एवं निर्माण कार्य के लिए ग्राम पंचायत अनापत्ति प्रमाण पत्र प्रदान करती है,



पंजीकरण सं०-37/2014

गेन्द मेला स्थापना वर्ष-14 जनवरी 1905

शंकर दत्त जोशी गेन्द मेला एवं क्षेत्रीय विकास समिति,

कोटद्वार, पौड़ी गढ़वाल

कार्यालय - ग्राम व पो0 मवाकोट, कोटद्वार गढ़वाल

पत्रांक 0551/16

दिनांक 24/12/2016

अनापत्ति प्रमाण पत्र

ग्रामीण पर्यटन स्वरोजगार योजना के तहत पर्यटन विकास हेतु एवं  
ग्रामीण अनाधार भूत सुविधा हेतु विभिन्न निर्माण जोड़ी निम्न प्रकार है-

- (1) गेन्द मेला मैदान में बेंचों की व्यवस्था
- (2) गेन्द मेला मैदान में त्रौ-चालीस पार्किंग
- (3) गेन्द मेला मैदान में पीने के पानी की व्यवस्था
- (4) गेन्द मेला मैदान में और प्रकाश की व्यवस्था
- (5) गेन्द मेला मैदान में अच्छा प्रबन्धन की व्यवस्था (सुशासन)

अतः हमारे निवेदन है कि उपरोक्त निर्माण कार्य हेतु जो भी श्रम की  
आवश्यकता होगी वह गेन्द मेला एवं क्षेत्रीय विकास समिति द्वारा उपलब्ध  
करा दी जायेगी एवं निर्माण कार्य के लिए शंकर दत्त जोशी गेन्द मेला एवं  
क्षेत्रीय विकास समिति अनापत्ति प्रमाण पत्र प्रदान करती है।

शंकर दत्त जोशी

अध्यक्ष

शंकर दत्त जोशी गेन्द मेला  
एवं क्षेत्रीय विकास समिति  
मवाकोट, कोटद्वार गढ़वाल।



उत्तराखण्ड UTTARAKHAND

31AA 461743

[illegible]

27-11-2021

Exam (4th) 2019

एफिलिम ५१० १४५

### अंश प्रति प्रमाण - पत्र

ग्रामीण पर्यटन स्वरोजगार योजना के तहत पर्यटन विकास हेतु एवं ग्रामीण आधारभूत सुविधाओं हेतु विभिन्न निम्न जो कि निम्न प्रकार हैं

- १) बेंचों के लिए छात्रदार वैन
- २) भूतल पर परिषद
- ३) सौर प्रकाश की व्यवस्था
- ४) कचरा प्रबंधन की व्यवस्था
- ५) लड़क साईन बोर्ड

अतः उपरोक्त निम्न कार्य हेतु जो भी धन की आवश्यकता होगी वह ग्राम पंचायत द्वारा उपलब्ध करा दी जाएगी, एवं निर्माण कार्य के लिए ग्राम पंचायत अनापति प्रमाण पत्र प्रदान करती है।



सुनापति प्रमाण पत्र 24/9/2016

राष्ट्रीय पर्यटन लक्ष्यकारी योजना के अन्तर्गत पर्यटन विकास हेतु एक ग्रामीण आधारभूत सुविधाओं हेतु निम्नलिखित निम्नलिखित जो कि निम्न प्रकार के हैं,

- 1) मानचित्र परिलक्ष के लक्ष्य के तहत की व्यवस्था
- 2) मानचित्र ड्रेकिंग मार्ग पर हाथ रोडों की व्यवस्था
- 3) बेंच के लिए धातुदार बेंच
- 4) सौर प्रकार की व्यवस्था
- 5) कचरा प्रणाली की व्यवस्था
- 6) सड़क साईन बोर्ड

इस प्रकार उपरोक्त निम्नलिखित कार्य हेतु जो भी शर्तों की आवश्यकता होती है वह ग्राम पंचायत द्वारा उपलब्ध करा दी जायेगी एवं इन कार्यों के लिए ग्राम पंचायत, सुनापति प्रमाण पत्र प्रदान करती है,



मदन लाल डबराल  
प्रधान

पत्र व्यवहार का पता:  
ग्राम- चौपड़ियाल गांव  
विकासखण्ड-चम्बा  
टिहरी गढ़वाल, उत्तराखण्ड  
मो.-9412142351, 8958525747

पत्रांक.....

दिनांक 22-9-2016

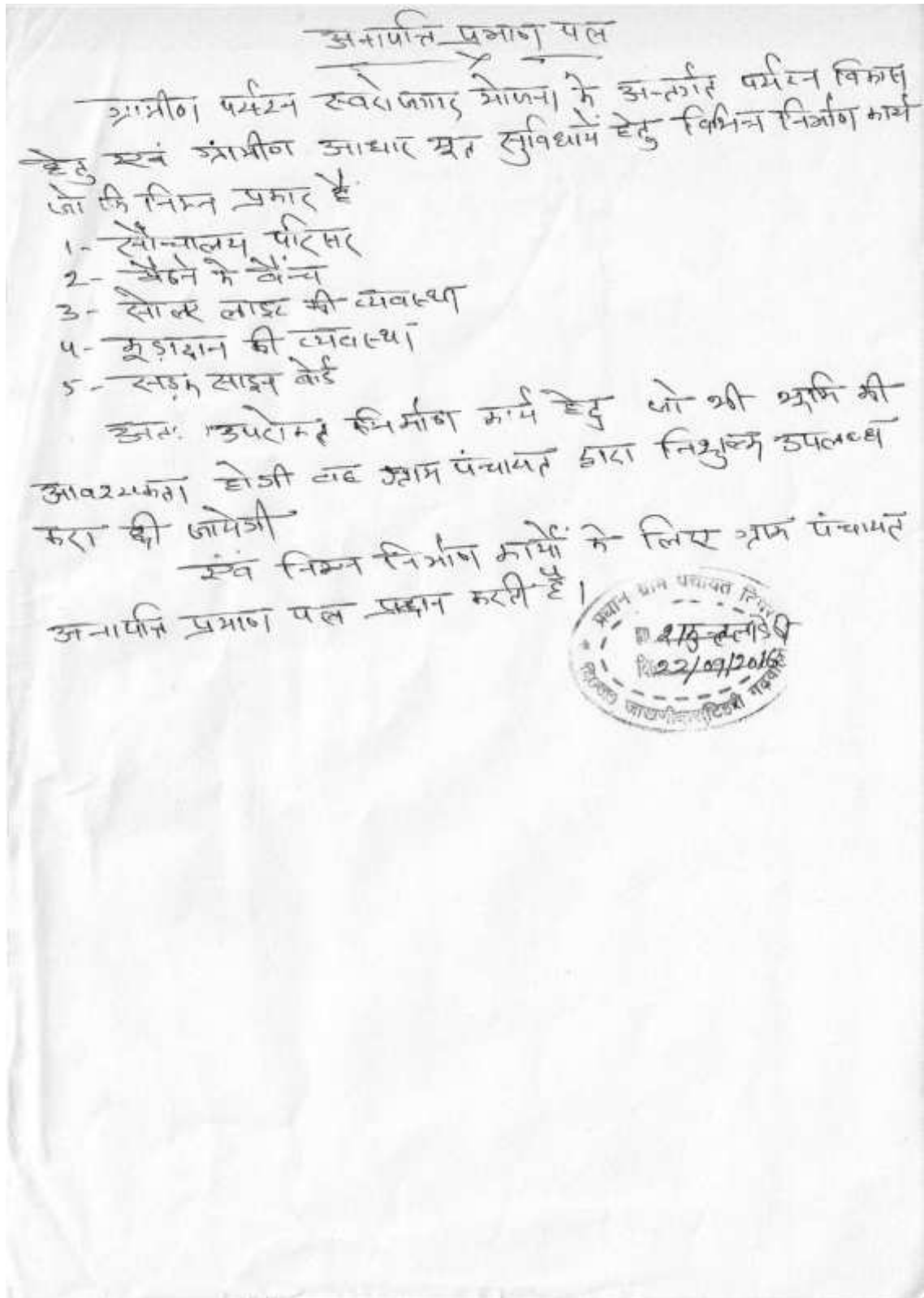
### अनापत्ति प्रमाण पत्र

ग्रामीण पर्यटन स्वरूपांगार योजना के अन्तर्गत पर्यटन विकास हेतु एवं ग्रामीण आधारभूत सुविधाये हेतु विभिन्न निर्माण जो की निम्न प्रकार है -

- 1). सह-उत्पादन प्रशिक्षण केन्द्र
- 2). कीचोस्क
- 3). सौर प्रकाश की व्यवस्था
- 4). कुड़ाफान की व्यवस्था
- 5). सड़क साईन बोर्ड

अतः उपरोक्त निर्माण कार्य हेतु जो भी भूमि की आवश्यकता होगी वह ग्राम पंचायत द्वारा उपलब्ध करा दी जायेगी। एवं निम्न निर्माण कार्यो के लिए ग्राम पंचायत अनापत्ति प्रमाण पत्र प्रदान करती है।







कीर्तिराम भट्ट  
"प्रधान"  
ग्राम पंचायत - मुखेम

जय श्री सेम नागराजा विजयते



पता- ग्राम पो0-मुखेम  
पट्टी -उपली रमोली  
वि0ख0-प्रतापनगर  
टिहरी गढ़वाल(उत्तराखण्ड)  
पिन 249165  
मो0 9411144436

पत्रांक .....

दिनांक.....

अनापत्ति प्रमाण पत्र

ग्राहिका विवरण योजना के अन्तर्गत विभिन्न आधारभूत सुविधाओं को कि निम्न प्रकार है।

- 1:- पैंहने के लिए पांच बेन्च
- 2:- कचरा प्रब-धन कि व्यवस्था
- 3:- सड़क साईन बोर्ड

महोदय आपसे अनुरोध है कि आपके पंचायत विभाग से जो स्वीकृत योजना केरी ग्राम पंचायत मिली है इसलिये ग्राम पंचायत अनापत्ति दे रही है जिसकी जिम्मेदारी ग्राम पंचायत कि होगी





शकुन्तला देवी  
ग्राम प्रधान - टिपरी

निवास :-  
ग्राम व पो0 - टिपरी  
पट्टी - खास, वि0ख0 - जाखनीधार  
जनपद - टिहरी गढ़वाल (उत्तराखण्ड)  
मो0 - 9012423901, 9012550874  
9557688325

पत्रांक ..... अनापत्ति प्रमाण पत्र दिनांक 7/9/2014

अनापत्ति प्रमाण पत्र इस संबंध में ग्राम टिपरी वि. 2 का जाखनीधार टिहरी गढ़वाल उत्तराखण्ड के सभी सड़क जोड़ने के लिए इन्फ्रास्ट्रक्चर डेवलपमेंट इन्वेस्टमेंट प्रोग्राम फॉर टूरिज्म (उत्तराखण्ड पर्यटन विकास परिषद के द्वारा निम्न लिखित प्रस्तावित कार्य

- 1 - 2 Km C.C मार्ग
- 2 - 2 ईं पानी के पूंछ 4 लाइन
- 3 - 20 सोलर लाइट
- 4 - बरत कलेज कीड़ा स्थल का निर्माण
- 5 - 1 बू लाइट निर्माण

के क्रिया-यत्न में कोई अनापत्ति नहीं है और इस उक्त प्रस्तावित कार्यों के लिए अपना पूर्ण सहयोग के साथ सहित है।



NOC of Tipri Village

## ग्राम पंचायत कोठार

विकासखण्ड-यमकेश्वर, जिला-पौड़ी गढ़वाल (उत्तराखण्ड)

श्रीमती गीता देवी

प्रधान

मो. : 8067942435 7055535669

निवास :

ग्राम व पोस्ट-कोठार, यमकेश्वर  
जिला-पौड़ी गढ़वाल (उत्तराखण्ड)

पत्रांक.....

दिनांक 01/03/2017

अनापत्ति प्रमाण पत्र

पर्यटन विभाग की ग्रामीण पर्यटन विकास की योजना के अन्तर्गत ग्रामीण पर्यटन के लिए आधारभूत सुविधाओं हेतु विभिन्न निमाण कार्य प्रस्तुत हैं।

- 1 - ट्रेनिंग कार्यक्रम
- 2 - सेफ्टिक टैंक का निर्माण
- 3 - शौचालय का निर्माण
- 4 - खैठने की व्यवस्था
- 5 - पीने के लिए पानी की व्यवस्था
- 6 - सड़िनार्ड
- 7 - रूढ़ादन

अतः उपरोक्त निर्माण के कार्य हेतु जो भी भूमि की आवश्यकता होगी वह ग्राम पंचायत द्वारा उपलब्ध करायी जायेगी इन कार्यों के लिए ग्राम पंचायत अनापत्ति प्रमाण पत्र प्रदान करती है।



NOC of Kuthar Village

## Annexure-7 Sample Semi-Annual Environmental Monitoring Report Template

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

### INTRODUCTION

- Overall project description and objectives
- Description of sub-projects
- Environmental category of the sub-projects
- Details of site personnel and/or consultants responsible for environmental monitoring
- Overall project and sub-project progress and status

No.	Sub-Project Name	Status of Sub-Project				List of Works	Progress of Works
		Design	Pre-Construction	Construction	Operational		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		

### COMPLIANCE STATUS WITH NATIONAL/STATE/LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

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

### COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

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

### COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

- Provide the monitoring results as per the parameters outlined in the EMP. Append supporting documents where applicable, including Environmental Site Inspection Reports.
- There should be Reporting on the following items which can be incorporated in the checklist of routine Environmental Site Inspection Report followed with a summary in the

semi-annual Report send to ADB. Visual assessment and review of relevant site documentation during routine site inspection needs to note and record the following:

- What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;
- If muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads;
- adequacy of type of erosion and sediment control measures installed on site, condition of erosion and sediment control measures including if these were intact following heavy rain;
- Are their designated areas for concrete works, and refueling;
- Are their spill kits on site and if there are site procedure for handling emergencies;
- Is there any chemical stored on site and what is the storage condition?
- Is there any dewatering activities if yes, where is the water being discharged;
- How are the stockpiles being managed;
- How is solid and liquid waste being handled on site;
- Review of the complaint management system;
- Checking if there are any activities being under taken out of working hours and how that is being managed.

**Summary Monitoring Table**

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

### Overall Compliance with CEMP/EMP

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

### APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

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

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

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

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

#### Air Quality Results

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

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

### Water Quality Results

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

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

### Noise Quality Results

Site No.	Date of Testing	Site Location	LA <sub>eq</sub> (dBA) (Government Standard)	
			Day Time	Night Time

Site No.	Date of Testing	Site Location	LA <sub>eq</sub> (dBA) (Government Standard)	
			Day Time	Night Time

### SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

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

#### Annexes

- Photos
- Summary of consultations
- Copies of environmental clearances and permits
- Sample of environmental site inspection Report
- Other

**Annexure-8 Photographs and Attendance Sheets of consultations**



**Public Consultation at Arakot**



**Public Consultation at Chopariyal**



**Public Consultation at Gajana**



**Public Consultation at Tipri**



**Public Consultation at Mukhem**



*Infrastructure Development Investment Program for Tourism, Uttarakhand (IDIPT: Tranche III)*  
*Initial Environmental Examination*  
*Development of Rural Tourism Infrastructure in Pauri and Tehri District*



**Public Consultation at Mavakot**



**Public Consultation at Kalalghati**



**Public Consultation at Jaiharikhal**



**Public Consultation at Sendhikhal**



**Public Consultation at Kuthar**



SL. No	Name/नाम	Designation/पद	Mobile No./फोन नं०	Signature/हस्ताक्षर
1	राजेश		8057225715	Rajesh
2	राजेश सिंह		9859333669	Rajesh
3	हरीश नैगी		9830232344	Harish
4	गिरिश नंद	प्रति प्रकाश	8765617130	Girish
5	पुष्पक सिंह		9458367340	Pushpak
6	विजय कुमार		9917345205	Vijay
7	अरविंद नैगी		8859804735	Arvind
8	सोपान सिंह			Sopana
9	गंगाधर सिंह			Gangadhar
10	सुरेश सिंह रावल	उप प्रधान	9917107075	Suresh
11	जगमोहन सिंह राणा	प्रति प्रतिष्ठ	8439387850	Jagmohan
12	मनमोहन			Manmohan

SL.No	Name/नाम	Designation/पद	Mobile No./फोन नं०	Signature/हस्ताक्षर
13	राजेश सिंह			Rajesh
14	जगदीश सिंह			Jagdish
15	महेश सिंह नैगी			Mahesh
16	इशामा सिंह नैगी			Isham
17	सविन जोशी		9917345205	Savin
18	Ritik Rathor			Ritik
19	दीपक सिंह		9927178021	Deepak
20	Deepak Sural	ANAR UJALA KOTA Reporter	9412934451	Deepak
21	8859542121 (मोबाइल नं०) Army			Amir
22			9841335 नं० 01	
23	अनंद हर रूप पानी	EX - SGT WEL	1382241307	Anand
24	Hirendra Singh	EX ARMY	9458108781	Hirendra

**Infrastructure Development Investment Program for Tourism, Uttarakhand (IDIPT: Tranche III)**  
**Initial Environmental Examination**  
**Development of Rural Tourism Infrastructure in Pauri and Tehri District**

SL.No	Name/नाम	Designation/पद	Mobile No./फोन नं०	Signature/हस्ताक्षर
25	Jitender (Jitter) Arora	सहायक	7409607526	Jitender Singh
26	श्री केशव		7351541927	Shri Keshav
27	श्रीपदी कुमारी	उपस्थिति	9720804402	Shri Padma Kumari
28	श्री गुरदीप नगी		8449283523	Shri Gurdeep Nagi
29	श्री जयनारायण शर्मा	ऑफिस	9690067457	Shri Jayanarayan Sharma
30	श्री केशव शर्मा	ऑफिस	9012282635	Shri Keshav Sharma
31	विनेश-एच 400	Support Engineer	8191995032	Vinay
32	Anil Aswal	Accounts officer, PU	8191995012	Anil Aswal
33	Vijay Singh	DSC Kaddawari	8923286535	Vijay Singh
34	Amit Bhardwaj	PIC Kot	9719628073	Amit Bhardwaj
35				
36				

**Attendance of Public Consultation at Kalalghati**

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200

Uttar

[illegible]

201

(भवकोट)  
आज दिनांक 15 नवंबर 2016 को कोल्हा महिला सभाजिक  
संस्था के अध्यक्ष श्रीमती शान्ति थापा व बुढ़ ग्राम के बुढ़  
वर्ष के लोगो के साथ बैठक का आयोजन किया गया, जिसके  
अंतर्गत ग्रामीण सड़क परियोजना विकास के विभिन्न बिन्दुओं  
पर चर्चा की गई। जिस अंतर्गत ग्रामीण सड़क परियोजना विकास  
के सभी बिन्दु व छोटे वाली गतिविधियों के लिये सभी ग्रामीण  
पूर्णतः सहमत हैं।

- ① हरेड मणीजोशी -
- ② श्रीमती सोदे देवी
- ③ श्रीमती सीता देवी
- ④ श्रीमती शान्ति थापा
- ⑤ जगदीश सिंह नेगी
- ⑥ राजेन्द्र सिंह

हरेड मणीजोशी  
सोदे देवी  
सीता देवी  
शान्ति थापा  
— 15.11.2016  
— राजेन्द्र सिंह




ग्राम पञ्चायत (भवकोट)  
श्री सुरेश रावत जी

Public Consultation at Mavakot

(संक्षिप्त) ग्राम पंचायत

आज दिनांक 20/12/2016 को ग्राम  
भीमसिंहपुर में ग्राम पंचायत की अध्यक्षता  
में आंगन क्लब द्वारा एक साधारण सी  
बैठक की गई, जहाँ ग्रामीण समुदाय पर्यटन  
विकास सम्बन्धित जानकारी दी गई, जिस पर  
पंचायत जी व उपस्थित ग्रामीण द्वारा यह  
निर्णय लिया गया कि भविष्य में क्लब आंगन  
क्लब द्वारा होने वाली गतिविधियों में पूर्ण  
रूप से सहमत हैं।

भीमसिंहपुर  
पंचायत



भगवती देवी	: - भगवती
अनिता देवी	: - अनीता देवी
सुष्मा देवी	: - सुष्मा देवी
धुमा देवी	: - धूमा देवी
गणेश	: - आमेव भारद्वाज Piv

Public Consultation at Kanvashram (Gram Panchayat: Bhimsinghpur)

आज दिनांक 29 नवम्बर 2016 को ग्राम  
जयधरियाल में महिला मिलन बैठक में श्री  
हरिमोहन रावत जी की अध्यक्षता में एक बैठक  
की आयी जिसमें ग्रामीण समुदाय पर्यटन  
विकास के विभिन्न बिन्दुओं पर चर्चा की गई,  
जिसमें सभी ग्रामीणों की, ग्रामीण समुदाय  
पर्यटन विकास समन्वयी समितियों में होने वाली  
गतिविधियों के लिये सहमत हैं व पूर्व रूप से  
योगदान करने के लिये तैयार हैं।

- श्री शिव प्रिय
- "आनंद प्रिय आनंद"
- "जगदीश प्रिय"
- "कुशी प्रिय"
- श्रीमती कुशी
- "आशा देवी"
- "साधना देवी"
- "कुशी देवी"
- "अनीता देवी"
- "इन्दु देवी"
- "रमणा देवी"
- "पुष्पा देवी"
- "सुमीला देवी"
- "लीला देवी"
- "रमा देवी"

श्री 2  
आनंद  
जय  
ग्रामीण (9837831065)  
आशा देवी

कुशी देवी  
अनीता देवी  
इन्दु देवी  
रमा देवी

सुमीला देवी  
लीला देवी

पार्वती देवी



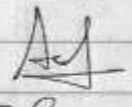
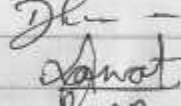
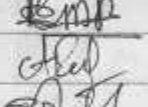
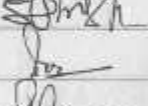
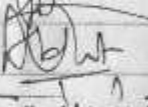
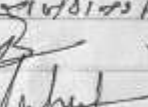
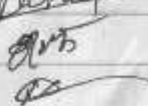
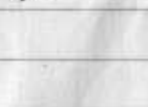
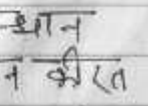

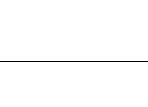


ग्राम प्रधान  
श्री हरिमोहन रावत जी  
( )


Public Consultation at Jaihari



कलालघाटी

आज दिनांक 24 नवम्बर 2016 को ग्राम  
कलालघाटी में श्रीमान गिलेन्द्र डोवरिया जी  
के द्वारा ~~ग्राम समुदाय~~ में एक बैठक की गयी, जिस पर  
ग्राम समुदाय पर्यटन विकास के विभिन्न बिन्दुओं  
पर चर्चा की गई, सभी ग्रामवासी ग्रामीण  
समुदाय पर्यटन विकास सम्मन्धित अविवेक में  
होने वाले विकास कार्य के लिये सहमत हैं  
व पूर्णरूप से योगदान करने के लिये तैयार  
हैं।

- गिलेन्द्र डोवरिया जी	
- विवाकर डोवरिया जी	
- Ashish Rawat	
- पवन कुमार	
- Ankit Rawat	
- Satyendra Singh	
- सौरभ उनियाल	
- मकज रावत	
- श्रीमान	
- राजेश गौड़	
- हरी	
- राहुल बमराड़ा	
- श्री कालिका लाल चौधरी	
- श्री कैलाश चन्द्र डोवरियाल	

 ग्राम प्रधान  
श्रीमान की रत  
सिंह केगी जी

Public Consultation at Kalalghati

आज दिनांक 5/2/2016 को एक आम बैठक हुई जिसमें पर्यटन विभाग की विभिन्न योजनाओं पर चर्चा हुई, जिसमें ग्राम पंचायत की आवश्यकता में एक आर्थिक कार्य करनी एक आम लोग की बैठक हुई पर्यटन विभाग की जो भी योजनाएँ होंगी, उसमें ग्राम सभा में किसी भी व्यक्ति का कोई स्वराज्य नहीं है, निर्णय करि

ग्राम सभा के सभी मा वराल के लिए जमिना,

प्रमाणित और पंजीकृत  
दि. 5.2.2016  
को पौ पुरा (टिहरी नगरपालिका)

1) पर्यटन विकास (ग्राम पंचायत की योजना)	
2) डिग्रेडेशन (ग्राम पंचायत की योजना)	
3) ग्राम सभा	
4) रतनगढ़ी	
5) प्रसीला देवी	प्रसीला देवी
6) रतनगढ़ी देवी	रतनगढ़ी देवी
7) राजेश्वरी देवी राजेश्वरी	
8) उरसीला देवी	उरसीला देवी
9) लखना देवी	लखना देवी
10) रामनी देवी	
11) सिनेरा	रामनी देवी
12) दिनेश प्रजापद	
13) मुला नंद	
14) जंजुन	
15) अनील	
16) नमनी देवी ग्राम पंचायत	नमनी देवी
17) राजेश्वरी देवी	राजेश्वरी देवी
18) लखना देवी	लखना देवी

Public Consultation at Chaupariyal Gaon (Sheet 1)

Date: \_\_\_\_\_  
Page No: \_\_\_\_\_

19	प्रिभदल	
20	नीला मशी	
21	खुरीयम	
22	स-नदमली	
23	सोम प्रकाश	
24	संगीता	
25	दपाली देवी	

ग्राम सभा ने निम्न तथ्य हेतु ग्राम सभा में आम जन  
हस्तक्षेप देने में सहयोग दिया। जिससे किसी का  
कोई खेतरा नहीं है।

10. शौचालय - 2, आरोग्यगृह - 1, सोपानीय (मार्फ - 2.  
उपरोक्त में प्रस्तावित नए ग्राम प्रपाक व ग्राम पंचायत  
आवश्यकताओं को ध्यान में रखते हुए,

ग्राम पंचायत निम्नलिखित कार्य  
ग्राम पंचायत - ...  
वि० ख०-संख्या (दि० म०) ...

ग्राम पंचायत निम्नलिखित कार्य  
दि० ...  
को सभा (दि० म०) ...

Public Consultation at Chaupariyal Gaon (Sheet 2)

