Initial Environmental Examination

Project Number: 40648-034
March 2017

IND: Infrastructure Development Investment Program for Tourism - Tranche 3

Subproject : Development of Traditional Medicine Panchkarma and Yoga Centres in the State of Uttarakhand

Submitted by:

Program Management Unit, Government of Uttarakhand, Dehrdaun

Asian Development Bank

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To:	Ms. Iva Ashish Srivastava Program Director, IDIPT Dehradun, Uttarakhand	**Date:** **Fax:** **Email**	29 March 2017 0135 2559988 utdb.pmu@gmail.com
Originator:	Sourav Majumder Project Officer (Urban)	**Approved by:**	L.B. Sondjaja Officer-In-Charge

Subject: Loan 3223-IND: Infrastructure Development Investment Program for Tourism, Project 3
— Initial Environmental Examination Report for Development of Traditional Medicine Panchkarma and Yoga Centers in the state of Uttarakhand

Dear Ms. Srivastava:

1. This refers to your letter of 16 March 2017, submitting the revised initial environmental examination (IEE) report for development of traditional medicine Panchkarma and Yoga Centers in Uttarakhand under the captioned project. The scope includes the development of traditional medicine panchkarma and yoga centers at 4 tourist rest houses (TRH) at Dhanaulti, Rishikesh, Chilla, and Lansdowne in Garhwal region and 6 TRHs at Mohaan, Chiliyanaula, Kausani, Choukori, Naukuchiyatal, and Sukhatal in Kumaon region. The TRHs at Chilla and Mohaan are located within the core zone of Rajaji National Park, and the buffer zone of Jim Corbett National Park respectively.

2. We reviewed the revised IEE report. We note that the national park management plans are not public documents as yet, and therefore, currently unavailable for sharing. We also note that the proposed works are likely to result in significant enhancement in the occupancy rate at these two TRHs, which could potentially increase the environmental stress and footprint by these two sub-projects on the impacted areas. Considering the above, the proposed interventions in the national parks require further detailed assessment of associated environmental implications, and may affect the environment category of the Loan in accordance with ADB's *Safeguard Policy Statement 2009 (SPS 2009)*. Please do not proceed with commencement of works in these two TRHs until the detailed assessment of associated environmental implications are completed following *ADB's SPS 2009* and full compliance with the statutory requirements is ensured.

3. The revised IEE report prepared for the above works has confirmed that the proposed works are not located inside or near designated core, buffer or eco-sensitive areas of national parks, sanctuaries, and biosphere reserves; protected wetlands; or any other ecologically and/or environmentally sensitive areas, except for two TRHs located at Chilla and Mohaan. It also confirms absence of rare, threatened, and endangered species (flora and fauna) within the project areas in case of eight TRHs and not located inside or near to any archaeological and/or protected monuments.

4. Based on the information furnished in the revised IEE report, the proposed works in eight TRHs located at Dhanaulti, Rishikesh, and Lansdowne in Garhwal region and at

Chiliyanaula, Kausani, Choukori, Naukuchiyatal, and Sukhatal in Kumaon region are assessed to be qualifying as of environment category "B" in accordance with ADB's *SPS 2009.* The revised IEE report is considered acceptable subject to limiting the scope of the proposed works to the eight TRHs listed above.

5. We would like to reiterate that *ADB's SPS 2009* requires all ADB-financed activities to comply with host country statutory environmental and forest related regulations applicable at the national, state and local levels. We request you to ensure that (a) the requisite statutory permissions /clearances /approvals are obtained from the relevant regulatory agencies prior to commencement of civil works, and are renewed in timely manner; (b) the construction material is sourced only from statutorily approved quarries, mines, and construction plants; (c) continued compliance with regulations including adherence to the terms and conditions stipulated in the regulatory permissions; (d) the requisite labor licenses are obtained in accordance with the labor laws of India; and (e) all workers (unskilled, semi-skilled and skilled categories) are adequately insured.

6. Kindly ensure that for the eight TRHs (i) the implementation arrangements outlined in the revised IEE report are made fully functional; (ii) the revised IEE report including associated environmental management and monitoring plan (EMMP) is disclosed to public in local language immediately; (iii) the EMMP is made a part of the bid and the contract documents; (iv) the items of work towards the implementation of environmental management and monitoring by the contractor that are not a part of the technical specifications and the bill of quantities, are specified separately in the bill of quantities in the contract document; and (v) the monitoring of ambient air quality, surface and ground water quality and noise levels during pre-construction and the construction stage by the project implementing unit and the civil works contractors respectively.

7. The revised IEE report will be disclosed on ADB website in accordance with *ADB's SPS, 2009* and *Public Communications Policy, 2011.*

Sincerely,

L.B. Sondjaja
Officer-In-Charge

cc: Mr. R.K. Joshi, Additional Program Director, UTDB, DOT, Government of Uttarakhand

Govt. of Uttarakhand

Program Management Unit
Infrastructure Development Investment Program for Tourism
(ADB Assisted – Loan No. 2833, India)
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Uttarakhand
Simply Heavenly

Ref:4866/2-10-ADB IDIPT/249/2014-15 Date: 16.03.2017

To

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

Sub: Loan No. 3223 IND- IDIPT, Submission of Revised IEE document for "Development of Traditional Medicine Panchkarma and Yoga Centres in the State of Uttarakhand"

Respected Madam,

Kindly refer to the IEE document submitted vide letter dt. 16.02.17 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.

Yours Sincerely

(R.K. Joshi)
Additional Program Director

Encl.:- As above

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Development of traditional medicine Panchkarma and Yoga centers in the state of Uttrakhand (Package no. UK/IDIPT/III/GEN/03)

Comments Compliance Matrix

Comment No.	Comment on the IEE vide mail dt. 01.03.17	Compliance in Revised IEE
1	We note from paras 4 and 5 (pages 7, and 8) that the (i) "yoga center and traditional medicine panchkarma" at Chilla resort in Rajaji National Park; and (ii) "traditional medicine panchkarma" at Mohaan resort in Jim Corbett National Park have been proposed under the sub-project. We further note during the discussion (with the experts) that the Chilla and Mohan resorts fall under the core zone of Rajaji National Park and buffer zone of Jim Corbett National Park respectively. We also note from table 2 (page 16) that the wildlife clearance due to proposed activities at Chilla and Mohaan resorts has been reported as "not applicable". As per the environmental assessment review framework (EARF), the activities in environmentally sensitive locations are not prohibited, but need approval from the Chief Wildlife Warden (para, 54 page 17). Please replace "wildlife clearance applicable" with "not applicable" in table 2, and process the requisite clearances from the regulatory agency for these two locations	In the Table-2, corrections have been done and revised Table-2 indicates 'The Wild Life (Protection) Act, 1972', applicable. Accordingly, PMU -UTDB has sent request letters to the respective Director (s) of Jim Corbett National Park and Rajaji National Park for 'No Objection Certificates (NOC)' for carrying out construction works at Chilla and Mohaan resorts for Yoga Centers and Traditional Medicine Panchkarma facilities. The request letters have been appended as Annexure-6 in the current version of IEE report. The construction works at these two resorts will be undertaken only after getting NOC letters from the National Park Officials.
2	We note from para 4 (page 7) that only "panchkarma facilities" have been proposed at Sukhatal, Mohaan, Kausani and Chiliyanaula resorts. We further note from table 3 (pages 21-22) that the resort at Chaokori has also been considered for "panchkarma facility" only. Please address the issue in para 4;	The para-4 in the executive summary has been corrected.
3	We note from table 5 (page 46) that the new constructions for "yoga and panchkarma center" have been proposed at vacant land at the resorts located in Naukuchiyatal and Lansdowne. We further note from table 13 (pages 63-64) that the new construction at vacant land	Table-13 has been corrected. It is confirmed that Yoga Center and Panchkarma facilities will be on vacant land at Lansdowne and Naukuchiatal only. In Ganga resort Rishikesh facilities will come up in the existing resort building only.

Comment No.	Comment on the IEE vide mail dt. 01.03.17	Compliance in Revised IEE
	has also been proposed at Ganga resort, which is reported to be a typological error (as reported by the expert). Kindly address the issue in table 5;	
4	We note from para 17 (page 10) that the proposed tourism activities are consistent with the government approved management plans of the respective national parks. Please highlight the summary of these national park management plans and enclose as annexure in the IEE report;	The Management Plan documents of National Parks are not in public domain and not being shared by the National Park Officials. The works proposed in the project shall be executed in the existing Tourist Rest Houses (TRHs) at Chilla and Mohaan, where already tourist flow exists. Letter has been written to the concerned National Park Authorities. (annex 6) NOC to be issued by the National Park Officials will confirm this fact and works in Chilla and Mohaan resorts will commence only after obtaining NOC. This has been indicated in IEE document and Environmental Management Plan.
5	We note from table 4 (page 23-30) that the list of panchkarma instruments have been given in the report. We further note that the waste water generated from panchkarma instruments during operation stage shall be disposed into existing septic tank of the resorts para 115 (page 65). Please assess the characteristics and quantification of waste generated during peak hours due to proposed panchkarma activities and update the collection, treatment and disposal of waste generated from panchkarma activities in the IEE report;	A new table (table-no. 18) has been added in the revised IEE report. In this table quantification of emissions, effluent and solid waste has been provided for each equipment / instrument of Panchkarma facilities. It is confirmed that waste oil will be collected from each equipment and it will be sent to the supplier for possible recovery and reuse. There will be no discharge of waste oil to the septic tanks. The detailed assessment of collection, treatment and disposal of waste has also been provided in para -117 of revised IEE report.
6	We note from annexure-1, REA checklist (pages 107-114) that works at two locations are located in national park (Chilla resort and Mohaan resort), whereas “NO” has been ticked in the checklist. Please undertake necessary amendments;	The necessary corrections have been done in REA checklist.
7	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	In the revised IEE report correct Loan No. 3223-IND has been indicated in the Climate Risk Screening Checklist. The scores of this checklist have also been made consistent to 'High' risk

Comment No.	Comment on the IEE vide mail dt. 01.03.17	Compliance in Revised IEE
	Loan-3223-IND. Please check and correct the scores given in the checklist to be consistent with the initial screening reported as “high” risk category (page 114);	category.
8	We note from table 18 (page 92) that the environmental monitoring during pre-construction has been considered, whereas the environmental budget (table 20, page 96) has been prepared only during construction stage. Please address this in the environmental budget.	The environmental monitoring is planned during pre construction and construction phases. The budget table has been modified to include monitoring expenses during pre construction phase.
9	Please provide the existing capacity of all TRHs, and the environmental assessment along with mitigation measures due to tourist movements during the operational stage of the project.	The existing capacities and occupancy status of TRHs/Resorts has been provided in Table-14, Table-15, Table-16 and Table-17. The environmental assessment due to tourist movement has been provided in para -115.

Environmental Assessment Document

Initial Environmental Examination (IEE)
Loan Number: 3223 IND
Package No: UK/IDIPT/III/GEN/03
Revised March 2017

Infrastructure Development Investment Program for Tourism in Uttarakhand

Sub Project – Development of Traditional Medicine Panchkarma and Yoga Centres in the State 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
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
FSI	-	Forest Survey of India
GMVN	-	Garhwal Mandal Vikas Nigam
GOU	-	Government of Uttarakhand
IDIPT	-	Infrastructure Development Investment Program for Tourism
IEE	-	Initial Environmental Examination
IUCN	-	International Union for Conservation of Nature
KMVN	-	Kumaon Mandal Vikas Nigam Ltd.
MFF	-	Multi-tranche Financing Facility
MoEF	-	Ministry of Environment and Forests GOU
NDBR	-	Nanda Devi Biosphere Reserve
NDNP	-	Nanda Devi National Park
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
TRH	-	Tourist Rest House
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 67.000

WEIGHTS AND MEASURES

dB (A) A-weighted decibel
ha - hectare
km - kilometer
km^2 - square kilometer
µg - microgram
m - Meter
m^2 - 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 Traditional Medicine Panchkarma and Yoga Centers at 10 locations of existing and operating Tourist Rest Houses (TRHs) and Resorts of Kumaon Mandal Vikas Nigam Ltd. (KMVN) and Garhwal Mandal Vikas Nigam Ltd. (GMVN) 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; 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 Traditional Medicine Panchkarma and Yoga Centers"** 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. This Initial Environmental Examination (IEE) has been prepared for the sub-project namely “Development of Traditional Medicine Panchkarma and Yoga Centers” as part of IDIPT Uttarakhand (Tranche-3). The IEE is based on a careful review of sub-project sites 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 (State as well as GOVERNMENT OF INDIA) regulations, policies and standards, as well as Asian Development Bank’s Safeguard Policy Statement (2009). The sub-project does not require prior environmental clearance under the Environmental Impact Assessment (EIA) notification 2006. There is no requirement for obtaining clearance under the Wild Life (Protection) Act, 1972 also.

4. **Sub-project Scope**- The sub-project is for development of Traditional Medicine Panchkarma and Yoga Centers at 4 TRHs/Resorts operated by GMVN in Garhwal Region (Dhanaulti, Rishikesh, Chilla and Lansdowne) and at 6 TRHs/ Resorts operated by KMVN (Mohaan, Chiliyanaula, Kausani, Choukori, Naukuchiyatal and Sukhatal) in Kumaon region of Uttarakhand state. The sub-project will also contribute towards preserving ecological and cultural integrity at all 10 locations. The physical infrastructure involves construction of Yoga Centre and/ or Panchkarma facilities at each location with a built up area in the range of 300-1300 sq ft. Out of this Panchkarma facilities will occupy 137-234 sq. ft area and balance by Yoga Centre. At some locations only Panchkarma facilities have been planned. These include Sukhatal, Mohaan, Choukori, Kausani and Chiliyanaula. These facilities are planned within the existing buildings of TRHs/Resorts except at Naukuchiyatal and Lansdowne. At both these locations, new facilities will be constructed in vacant land inside the premises of resorts/TRHs. The vacant land has been identified at both the locations. The elevation of the sub-project (10 locations) sites varies from 304-2284 m above MSL. All the project related infrastructure will be provided on the unencumbered land belonging to Government

of Uttarakhand within the existing resorts/TRHs. There have been discussions with the KMVN and GMVN Managements and their consent has been obtained for the creation of infrastructure related to sub-project and subsequent operations. There are no impacts envisaged on land acquisition or resettlement due to the proposed sub-project components. As part of Panchkarma facilities instruments will also be procured. The sub-project sites are spread all over State of Uttarakhand.

5. **Descriptions of Environment-** There are no wetlands, mangroves, or estuaries within or near the sites selected for Yoga Center and Panchkarma facilities. Two Resorts where the sub-project facilities are planned are in National Park. Out of these, one is Chilla Resort near Haridwar in core zone of Rajaji National Park and other one at Mohaan in buffer zone of Jim Corbett National Park. All the sub-project components at both these resorts are planned within the existing buildings of the resorts by minor repair and readjustment within the existing layout. No sub-project activity is planned on National Park land. Other eight locations are away from core and buffer zones of National Parks and Protected areas. The sub-project does not require removal of trees and shrubs. Trees, vegetation and animals in the sub-project sites other than those located in National Parks are those commonly found in rural and open areas of Uttarakhand. No rare, threatened, endangered or endemic flora or fauna are observed in the surroundings of sub-project 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 (within 500 m). 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 Yoga Centers and Panchkarma facilities at TRHs/Resorts..

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 Yoga Centers and Panchkarma facilities. 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 the construction 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) dust generation, (ii)air and noise pollution from construction activities, (iii) handling of construction materials at sites, (iv) disposal of construction waste materials, and (v) adoption of safety measures during construction. These are common

impacts of construction, and there are well developed methods for their mitigation. The sub-project is relatively small in scale and involves simple construction of Yoga Hall and Room for Panchkarma at 02 locations: Naukuchiyatal resort and Lansdowne and minor repair and realignment works in the remaining 08 locations. Ground water will not be used for construction purposes, and water is proposed to be obtained from water supply of Resort/TRH and the problem of ground water contamination is not anticipated during the construction phase as there will be proper disposal of waste water through existing septic tanks of adequate capacity at all locations of sub-project. Since works are of small in nature so construction camp establishment is not foreseen at any of the Resort/TRH sites selected for development of Yoga Centers and Panchkarma facilities.

10. Few impacts are anticipated during operation phase of the sub-project. There will be generation of waste oil at Panchkarma facilities during operation phase. This waste oil will be collected and sent back to the supplier for possible reuse and recycle. The solid waste generated through operations of Panchkarma facilities will be disposed off along with TRH/Resort solid waste. 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 environmentally friendly and biodegradable products, collection of waste and use of organic 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 and these are within the premises of existing and operating TRHs/Resorts of KMVN and GMVN. There is no encroachment or any squatter settlement at locations identified for Yoga Centers and Panchkarma 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 Resorts and TRHs will contribute towards socio-economic rehabilitation 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 Yoga Centers and Panchkarma facilities, the locals will get direct and indirect employment due to improved occupancy of TRHs and Resorts. Some of the local youths will be employed as Yoga and Panchkarma specialists at the locations of Yoga and Panchkarma facilities. This can be considered a long-term cumulative benefit of the sub-project in the entire state.

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 (Government of India) EIA Notification (2006).

15. **Consultation, Disclosure and Grievance Redress-**Public consultations were done in the preparation of the project and IEE. Ongoing 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, PIUs (Kotdwara and Bhimtal), PMC and DSC will be responsible for environmental monitoring. The PIUs 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 engine eering 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. It may also be mentioned that there will not be any measurable impact on Rajaji National Park (Chilla resort sub-project site) and Jim Corbett National Park (Mohaan Resort sub-project site) as the tourism activities are in consistence with National Parks Management Plan. It has been recommended in IEE report that construction works in Chilla and Mohaan resorts will only be undertaken when NOCs from the respective parks are available. Any conditions laid down in NOCs shall be adhered to during the life cycle of the sub-project. 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. As part of Tourism Infrastructure Development in the State of Uttarakhand, Development of Traditional Medicine -Panchkarma and Yoga Centers at ten locations are planned all over the state in the existing Tourist Rest Houses (TRHs) facilities operated by the Government of Uttarakhand. The Panchkarma facilities and Yoga Centers are planned at ten locations.

19. **Location:** The sub-project sites are spread in all over the State. 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.	TRH Name	District Name	Altitude (m)	Distance from (km)	
1.	TRH Chilla Resort	Haridwar	304	Jolly Grant Airport	: 37 km
				Delhi	: 219 km
				Haridwar	: 8 km
				Dehradun	: 56.4 km
				Rishikesh	: 131 km
				Pauri	: 20 km
				Kotdwar	: 72 km
				Lakshman Jhoola	: 25
2.	TRH Ganga Resort	Tehri Garhwal	346	Jolly Grant Airport	: 19 km
				Delhi	: 239 km
				Haridwar	: 26.5 km
				Dehradun	: 44 km
				Rishikesh	: 2 km
				Pauri	: 110 km
				Kotdwar	: 93.4 km
				Lakshman Jhoola	: 4 km
3.	TRH Dhanaulti	Tehri Garhwal	2284	Jolly Grant Airport	: 88 km
				Delhi	: 326 km
				Haridwar	: 114 km
				Dehradun	: 61 km
				Rishikesh	: 91 km
				Mussoorie	: 32.6 km
				New Tehri	: 41 km
				Chamba	: 30 km
4.	TRH Lansdowne	Pauri Garhwal	1795	Jolly Grant Airport	: 118 km
				Delhi	: 243 km

Sl. No.	TRH Name	District Name	Altitude (m)	Distance from (km)	
				Haridwar	: 122 km
				Dehradun	: 170 km
				Srinagar	: 111 km
				Pauri	: 82 km
				Kotdwar	: 42.5 km
				Rishikesh	: 133
5.	TRH Sukhatal	Nainital	2043	Jolly Grant Airport	: 268 km
				Delhi	: 283 km
				Almora	: 66 km
				Champawat	: 154 km
				Haldwani	: 33 km
				Ram Nagar	: 61.4
				Pant Nagar Airpc	: 61 km
6.	TRH Naukuchiyatal	Nainital	1270	Jolly Grant Airport	: 291 km
				Delhi	: 306 km
				Almora	: 69 km
				Champawat	: 142 km
				Nainital	: 26 km
				Haldwani	: 33 km
				Pant Nagar Airport	: 60 km
7.	TRH Mohaan Resort	Nainital	505	Jolly Grant Airport	: 230 km
				Delhi	: 270 km
				Haldwani	: 75 km
				Kotdwar	: 165 km
				Pantnagar Airport	: 104 km
				Ram Nagar	: 23 km
				Ranikhet	: 73 km
				Almora	: 104 km
8.	TRH Kausani	Almora	1764	Jolly Grant Airport	: 295 km
				Delhi	: 450 km
				Bageshwar	: 41 km
				Dwarahat	: 48 km
				Pantnagar Airport	: 170 km
				Nainital	: 116 km
				Ranikhet	: 55 km
				Almora	: 104 km
9.	TRH Chiliyanaula	Almora	1829	Jolly Grant Airport	: 304 km
				Delhi	: 357 km
				Nainital	: 65 km
				Kausani	: 67 km
				Pantnagar Airport	: 113 km
				Jageshwar	: 41.5 km
				Ranikhet	: 5 km
				Almora	: 50 km
10.	TRH Choukori	Pithoragarh	1775	Jolly Grant Airport	: 343 km
				Delhi	: 455 km
				Munsyari	: 97 km
				Patal Bhuvaneshw	: 37.3 km
				Pantnagar Airport	: 223 km

Sl. No.	TRH Name	District Name	Altitude (m)	Distance from (km)	
				Jageshwar Dham	: 105 km
				Almora	: 108 km
				Bageshwar	: 50 km

20. Uttarakhand is one of the most beautiful and enchanting region of northern India. Nature has endowed this land with so much beauty and spiritual bliss that it is also known as Dev Bhoomi, the Land of Gods. Ganga, Yamuna and scores of other rivers originate in Uttarakhand. Among them Ganga is the most holy and prominent as she represents the soul of India, her rich culture, history and civilization. In Sanskrit 'Himalaya' means Abode of Snow, truly characterizing the vast permanent snow fields above the snowline? In the heart of these majestic mountains lies the state of Uttarakhand with Kumaon region in its east and Garhwal in the west. Uttarakhand came into existence on 9th November 2000 as the 27th state of the Republic of India. It was carved out of Uttar Pradesh. The state has been granted status of special category state by Union Cabinet on 2nd May, 2001. Uttarakhand is a border state bordering China and Nepal. Geographically Uttarakhand is situated between 77^0 34' to 81^0 2' East longitude and 28^0 4' to 31^0 27' North latitude. Uttarakhand is predominantly a hilly state with 88% of hilly area. The climate of the state varies from subtropical in valleys to temperate on higher slopes. Total area of Uttarakhand is 53,483 sq km, which is 1.73% of the total area of India. The state is very rich in natural resources specially forest and water, as it has many glaciers, dense forests, mountain peaks and a network of mighty rivers viz., Ganga, Yamuna, Ramganga, Kosi etc. A total of 64.6% of the area is under forest cover.

21. Uttarakhand is divided into two regions and also called administrative divisions, basically following terrain: the Kumaon and Garhwal. The Kumaon division located south-east of the state and composed of Almora, Bageshwar, Champawat, Nainital, Pithoragarh, and Udham Singh Nagar. The Kumaon region is part of the vast Himalayan track and the sub-mountains of Terai and Bhabhar. The region is drained by Gori, Dhauli, and Kali from the Tibetan mountains, and Pindari and Kaliganga which ultimately joins Alaknanda River. The Garhwal division is composed of Chamoli, Uttarkashi, Rudraprayag, Tehri Garhwal, Pauri, Dehradun, and Haridwar districts. And is entirely on rugged mountain ranges dissected by valley, and deep gorges. The Alaknanda River, the main source of the Ganges, traces its headwaters in this region.

22. According to the 2011 census of India, Uttarakhand has a population of 10,116,752 comprising 5,154,178 males and 4,962,574 females, with 69.45% of the population living in rural areas. The state is the 20th most populous state of the country having 0.84% of the population on 1.69% of the land. The population density of the state is 189 people per square kilometer having a 2001–2011 decadal growth rate of 19.17%. The gender ratio is 963 females per 1000 males.

Present Status of Sub-project Sites:

23. The locations of all sites of sub-project are in the existing and operating Tourist Rest Houses constructed by the Government of Uttarakhand. These TRH facilities are operated by the two State Government owned companies namely Garhwal Mandal Vikas Nigam Ltd. (GMVN) and Kumaon Mandal Vikas Nigam Ltd. (KMVN) in the respective zones of Garhwal and Kumaon. **The Yoga Centers and Panchkarma facilities are planned in the existing buildings after interior refurbishment and slight alterations.**

24. The expected impact of the sub-project is sustainable and inclusive tourism development in the state, improved and additional facilities for tourists at the respective TRHs. The creation of facilities through sub-projects.

25. As per the ADB's Environmental Assessment Guidelines, and in line with the Environment Assessment and Review Framework (EARF) for the project, the sub-project namely **'Development of Traditional Medicine Panchkarma and Yoga Centers'** 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 Panchkarma and Yoga Centers 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

26. The purpose of sub-project IEE preparation is to assess the environmental impacts and to specify mitigation measures for the identified adverse impacts. The IEE is also prepared to take views, comments and suggestions of all relevant stakeholders for inclusion in project design and implementation. 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

27. 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[1] - Category 'A' and Category 'B', based on the spatial extent of potential impacts and potential impacts on human health and natural and man-made resources. Given that the sub-project is not covered in the ambit of the EIA notification, Environment clearance requirements from the Government of India are not triggered.

[1]All projects or activities included as Category 'A' in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, will require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoEF) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification; All projects or activities included as Category 'B' in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which 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

Table 2: Environmental Regulatory Compliance

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
Development of Traditional Medicine Panchkarma and Yoga Centers in Uttarakhand at TRH Facilities	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. **Not Applicable**
	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. **Not Applicable**
	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 all 10 locations are not close to any ASI protected monument. Hence no permission is needed from ASI. **Not Applicable**
	Water (Prevention and control of pollution) Act, 1974 and Air (prevention and control of pollution) Act, 1981	Consent for Establishment (CFE) and Consent for Operation (CFO) from the 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. **Not Applicable as such facilities are not planned**
	The Wildlife (Protection) Act, 1972, amended in 2003 and 2006, provides for protection and management of Protected Areas.	Two TRH facilities namely Chilla (in Garhwal region) is located inside Rajaji National Park core zone and Mohaan TRH (in Kumaon region) facilities are located within Buffer Zone of Jim Corbett National Park. The sub-project related facilities are to be created within the already constructed buildings of TRHs at both the locations. The other 8 locations of Yoga Center and / or Panchkarma are planned in TRHs located outside National Parks and Protected areas.

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
		Accordingly, for construction of facilities of Panchkarma facilities and / or Yoga Center at Chilla and Mohaan Resorts, NOC/Permission request to Chief Wild Life Warden has been sent. NOC / Permission is awaited. **Applicable**
	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 no forest land diversion is required for creation of facilities related to sub-project. Hence no Forest Clearance under the Forest (Conservation) Act, 1980 needs to be obtained. **Not Applicable**
	ADB's Safeguard Policy Statement, 2009	Categorization of sub-project components into A, B, C FI and developing required level of environmental assessment for each component. Project is categorized as B (Ref: REA Checklist **Annexure-1** and EARF Selection Criteria **Annexure-2**)

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

29. The ADB guidelines, stipulate addressing environmental concerns, if any, of a proposed activity in the initial stages of project preparation. For this, the ADB Guidelines categorizes the proposed components into categories (A, B or C) to determine the level of environmental assessment [2] required to address the potential impacts. The Rapid

[2] As per SPS 2009 projects are assigned to one of the following four categories: (i) **Category A.** A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities

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 reconnaissance surveys. Stakeholder consultation was an integral part of the IEE. An Environmental management plan (EMP) outlining the specific environmental measures to be adhered to during implementation of the sub-project has been prepared.

Review and Approval Procedure

30. For Category 'B' projects the Draft Environmental Status report is reviewed by ADB's Regional Department sector division and Environment and Social Safeguards Division, and 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 Executing Agency 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

31. 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.

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).

II. DESCRIPTION OF THE PROJECT COMPONENTS

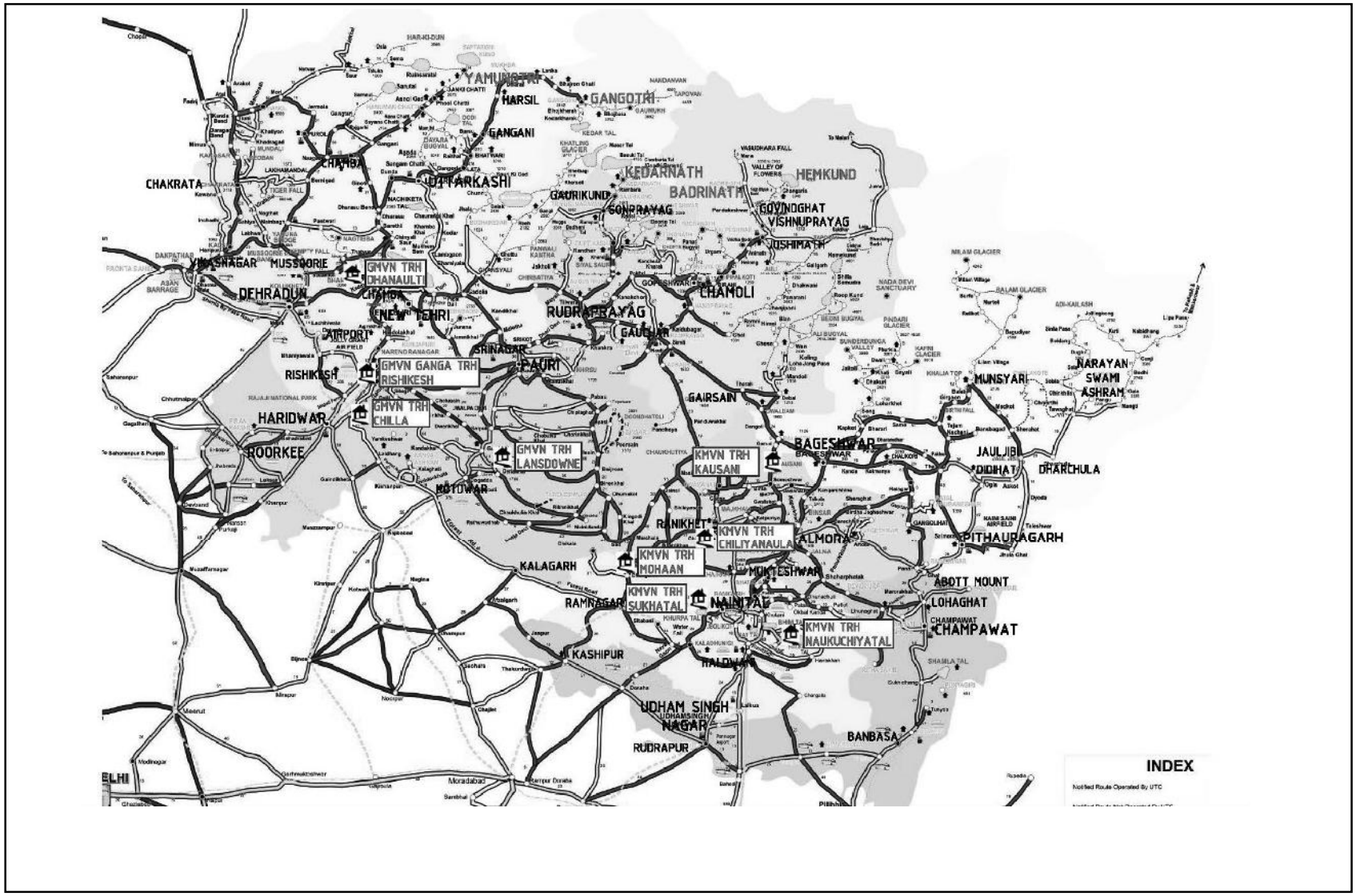
1. Need of the Sub-project

32. The TRH facilities selected for Yoga Centers and Panchkarma facilities are in demand because these are located at prime locations. The creation of these facilities will result in better occupancy and additional income to the TRHs. These facilities will also generate additional employment for the locals. The facilities Yoga and Panchkarma are many a times are demanded by the visiting tourists and guests staying in these facilities. Keeping the above facts in mind, the UTDB has planned to create these facilities at the selected locations of TRH. After gauging the success of these facilities at these selected locations, UTDB will multiply these facilities at other locations of TRH. .

2. Locations of Sub-project Sites

33. The locations of the sub-project sites have been shown in **Figure-1** for both the regions of Uttarakhand. The facilities planned at various sites of sub-project have been detailed in **Table-3**. The sub-project sites photographs have been provided **Annexure-3**.

Figure 1: Map Showing Locations of Yoga Centers and Panchkarma Facilities


YAMUNOTRI
HARSIL
GANGOTRI
GANGANI
CHAMBA
CHAKRATA
UTTARKASHI
KEDARNATH
BADRINATH
HEMKUND
GAURIKUND
GOVINDGHAT
VISHNUPRAYAG
JOSHIMATH
MUSSOORIE
GMVN TRH DHANAULTI
DEHRADUN
CHAMOLI
NEW TEHRI
RUDRAPRAYAG
GAUCHAR
AIRPORT
SRINAGAR
PAURI
NARAYAN SWAMI ASHRAM
MUNSYARI
RISHIKESH
GMVN GANGA TRH RISHIKESH
GMVN TRH CHILLA
GAIRSAIN
HARIDWAR
ROORKEE
GMVN TRH LANSDOWNE
KMVN TRH KAUSANI
BAGESHWAR
JAULJIBI
DIDIHAT
DHARCHULA
MOTIWAR
RANIKHET
KMVN TRH CHILIYANAULA
ALMORA
PITHAURAGARH
KMVN TRH MOHAAN
KALAGARH
MUKTESHWAR
ABBOTT MOUNT
RAMNAGAR
KMVN TRH SUKHATAL
NAINITAL
LOHAGHAT
KMVN TRH NAUKUCHIYATAL
CHAMPAWAT
KASHIPUR
HALDWANI
UDHAM SINGH NAGAR
BANBASA
RUDRAPUR
INDEX

3. Project Category

34. 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

35. The infrastructure for Yoga Centers and Panchkarma will be created within the existing buildings of TRH facilities after interior refurbishment and slight alterations. The details of the infrastructure for Yoga Centers have been given in **Table-3.** For Panchkarma there will be requirement for instruments / equipment. The details of these instruments / equipment have been given **Table-4.** The locations of all ten TRH selected have been shown in **Figure-2. The layout plans of for the facilities have been given in Figure-3.**

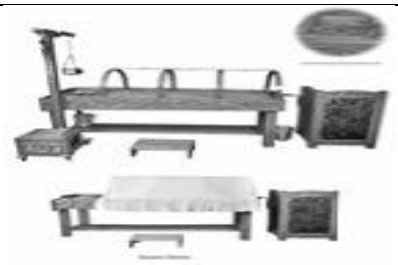
Table 3: Planned Infrastructure Facilities at Sub-project Sites

Sl. No.	Name of The Resort/Location	Area Details in Sqft	Area in Sqft/Sqm
1	TRH Chilla Resort	Reception-1 (79.75)	885/83
		Panchkarma Room-3 (137.5)	
		Bathroom-3 (49.5)	
		Yoga Room-1 (239.25)	
		Store-1 (100)	
		Corridor-1 (92)	
2	TRH Ganga Resort	Reception-1 (79.75)	885/83
		Panchkarma Room-3 (137.5)	
		Bathroom-3 (49.5)	
		Yoga Room-1 (239.25)	
		Store-1 (100)	
		Corridor-1 (92)	
3	TRH Dhanaulti	Reception & Yoga Room-1 (350)	692/65
		Panchkarma Room-1 (234)	
		Bathroom-1 (108)	
4	TRH Sukhatal	Reception-1 (238)	1024/96

Sl. No.	Name of The Resort/Location	Area Details in Sqft	Area in Sqft/Sqm
		Panchkarma Room-3 (234)	
		Bathroom-3 (108)	
		Store-1 (102)	
5	TRH Naukuchiyatal	Reception-1 (120)	1290/120
		Panchkarma Room-3 (165)	
		Bathroom-2 (105)	
		Bathroom-3 (60)	
		Yoga Room-1 (500)	
		Store-1 (70)	
6	TRH Lansdowne	Reception-1 (112)	1350/126
		Panchkarma Room-3 (180)	
		Bathroom-2 (120)	
		Bathroom-3 (64)	
		Yoga Room-1 (510)	
		Store-1 (64)	
7	TRH Mohaan Resort	Panchkarma Room-1 (242)	312/29
		Bathroom-1 (70)	
8	TRH Kausani	Panchkarma Room-3 (190)	620/58
		Bathroom-3 (120)	
9	TRH Chiliyanaula	Panchkarma Room-3 (218.75)	675/63
		Bathroom-3 (118.75)	
10	TRH Chaokori Resort	Panchkarma Room-1 (340)	1120/105
		Bathroom-2 (220)	
		Panchkarma Room-2 (340	
		Bathroom-2 (220)	

Table 4: List of Panchkarma Instruments / Equipment

Sl. No.	Description	Image
1.	**STEAM CABINET with STEAM GENERATOR** A well designed sturdily built cabinet made out of hard-wood and water proof ply, to be equipped with an adjustable wooden seat & foot rest. The cabinet will have laminated finish from outside & spray painted f om inside. A stainless steel tray will be provided to store condensed water, of width 28"x depth 37"x height 47". SPECIAL FEATURES : Cabinet will be of Hardwood and water proof ply, to be painted from inside and laminated from outside. Steam-Generator will be of Heavy Aluminum body, with Safety valve, Steam control valves & Pressure Gauge. Power: 2kw, Heater. 220V AC. The Steam Generator to be fitted with Temperature Controller cum Indicator and Timer (60 minutes).	
2.	**Massage cum Shirodhara Table:** The table will be seasoned Hardwood with natural wood polish finish, will have a slanted & curve Hard-wood top for full body oil massage and Shirodhara. Table will have a shelf for storage of accessories e.g. Oil bottles and Towel etc. Head end to be fitted with a stainless steel sink and an overhead chrome plated bar, with Stainless steel oil pot, for Shirodhara. Size: 225cm x 80cm x 80cm high.	
3.	**Traditional Massage cum Shirodhara Table (Wooden):** The table will be a seasoned Hardwood with natural wood polish finish; will have a slanted & curved hard-wood top for full body oil massage and Shirodhara. Head end has a specially designed wooden pot for oil collection. To be used for Abhyanga, Shirodhara & Nasya etc. Dharapathy made of wooden board with wooden rim all around, in sleek and elegant design. Size: 290cm x 80cm x 15cm high (Total height: 80cm)	

Sl. No.	Description	Image
	Finish: Natural wood polish	
4.	**Royal Panchkarma Work Station** Sturdily built, sleek & elegant Abhyanga table top to be made of mill jointed wooden board with Hardwood borders. The table will be slanting towards Head-end and Foot-end for collection of oil. Table will be used for Abhyanga, Shirodhara, Nasya, and Vashpa & Nadi Swedan etc Table size. : 200cm x 80cm x 80cm high. Table top to be made of jointed wooden board with hand carved side borders & Legs Shirodhara Stand. : Carved seasoned solid Wood stand with storage box, mounted on wheels including a Copper pot, brass chains, hooks to hang. Pot (with hammer marks) with a bright natural finish Swedan Yantra. : Heavy Aluminum body fitted with electric heater, pressure gauge, safety pressure valve & steam flow control valves. Mounted on wheels Steam Dome. : made of seasoned Teak-wood Dome in Two parts for steam-bath. Overall Size: Approx.150cm x 70cm x 45cm. Accessories. : One: Copper Pot, Four: White off white cotton sheet covers for Steam Dome, Foot stool & Wooden partition for Steamer, Finish. : Natural wood polish finish. Power. : 220V AC. 3kw.	
5.	**NADI SWEDAN YANTRA (Electrical)** Suitable for giving steam bath at particular area. The heavy body steam generator to be fitted with an electric heater, pressure gauge, safety pressure valve & steam flow control valve. Steam flows from a hand-held nozzle to give proper steam-bath at a point. Mounted on Four wheels for easy mobility	

Sl. No.	Description	Image
6.	**NADI Sweden YANTRA (Semi- Auto. Electrical)** The heavy body steam generator to be fitted with minimum water level Cut Off and Temperature controller. The unit is suitable for giving steam at a particular area with a specifically designed hand held nozzle. Yantra is fitted with 3Kw electric heater, pressure gauge, safety pressure valve and a steam flow control valve. Mounted on Four wheels for easy mobility.	
7.	**STAND for SHIRODHARA (Metal with SS Pot)** Painted metal stand with chrome plated over-head bar mounted on a wide tubular base, fitted with two wheels for mobility, with Stainless steel oil pot of 2 lit. Capacity, brass chains & hooks to hang for Shirodhara treatments.	
8.	**Model: AMP-032284** **STAND for SHIRODHARA (Wooden, with Copper Pot)** Heavy duty, carved seasoned solid Wood stand with wide wooden base mounted on four wheels with a Copper pot, brass chains & hook to hang for Shirodhara oil treatments Pot with Oil capacity of 2 lit. to be fitted with oil flow control valve mechanism. Pot with hammer marks with a bright natural finish.	
9.	**SHIRODHARA YANTRA (Electrical) (Automatic with oil flow & temperature Controller)** Shirodhara Yantra to be fitted with stainless steel sink (for Oil Collection), Filtration and Digital Temperature indicator cum controller (for Temperature Control of oil). including electrical Flow Control system for controlling of Oil Drops / Dhara, with electrical Timer. The will be housed within a metal cabinet with chrome plated push handle, mounted on four wheels with Powder coated exterior finish.	

Sl. No.	Description	Image
10.	**Shirodhara Stand (Wooden, with Head Support)** A complete manual Shirodhara Yantra will consist of Carved wooden stand, Brass pot, wooden Head Support, Oil collecting bucket and mug for Shirodhara oil treatments. Stand. : Stand carved from seasoned wood with wheels. Pot/Yantra. : Copper, 2 lit. Capacity, fitted with oil flow control valve. Head Support. : Specifically designed adjustable Wooden Head support, with oil collection and draining system. Oil Collection. Stainless steel bucket placed under the head support for collection of oil. Accessories. : Stainless steel. Mug for transfer of oil from Bucket to Pot Finish. : Wooden Stand to have natural polish finish And Pot with hammer marks with a bright natural finish.	
11.	**SHIRODHARA POT (Brass)** A shallow Brass pot with brass chains and 'S' hook to enable hanging from a hook/stand for Shirodhara oil treatments. Pot with Oil capacity of 2lit. To be fitted with oil flow control valve mechanism. Pot with hammer marks will have a bright natural finish	
12.	**SHIRODHARA POT (Copper)** A shallow Copper pot with brass chains and 'S' hook to enable hanging from a hook/stand for Shirodhara oil treatments. Pot with Oil capacity of 2lit. Will be fitted with oil flow control valve mechanism. Pot with hammer marks will have a bright natural finish	
13.	**SHIRODHARA POT/YANTRA (Stainless Steel)** A shallow stainless steel pot with brass chains and 'S' hooks to enable hanging from a hook / stand for Shirodhara oil treatments. Pot with Oil capacity of 2lit. Will be fitted with oil flow control valve mechanism. Pot with Brass base will have a bright natural finish	

Sl. No.	Description	Image
14.	**Shiro Vasti Cap (80cm X 20cm)** The item/s, as detailed above will conform to the standard specification existing in the sector and one number of each of these items will need to be supplied to the "Employer" for prior approval.	
15.	**Model: AMP-032316** **Vasti Yanthram with two Vasti Tips (Metal)** The item/s, as detailed above will conform to the standard specification existing in the sector and one number of each of these items will need to be supplied to the "Employer" for prior approval.	
16.	**Panchkarma Accessories Set (Set of 16 pcs)** Will be made of Bronze, hand cast in traditional shapes and designs. Bowl with Handle Oil Bowl Mortar & Pestle Thannikinnam Nasya Yanthram (Bronze) Polished Uruli 3" dia (Rasnadi Choornam) Polished Warp 5" dia (Kalabha Kinnam) Polished Warp - 9"dia Lotta Nilavilakku - 12" size Kindi with Handle – 500 ml Incense Holder Thavi Unpolished Uruli 12" Vasti Yanthram (Bronze) Vasti Kit (with 50nos. Disposable tips & Bags)"	
17.	**Panchkarma Accessories (Set of 4pcs)** Janu Vasti, Greva Vasti, Kati Vast, Netra Vasti The item/s, as detailed above will conform to the standard specification existing in the sector and one number of each of these items will need to be supplied to the "Employer" for prior approval.	

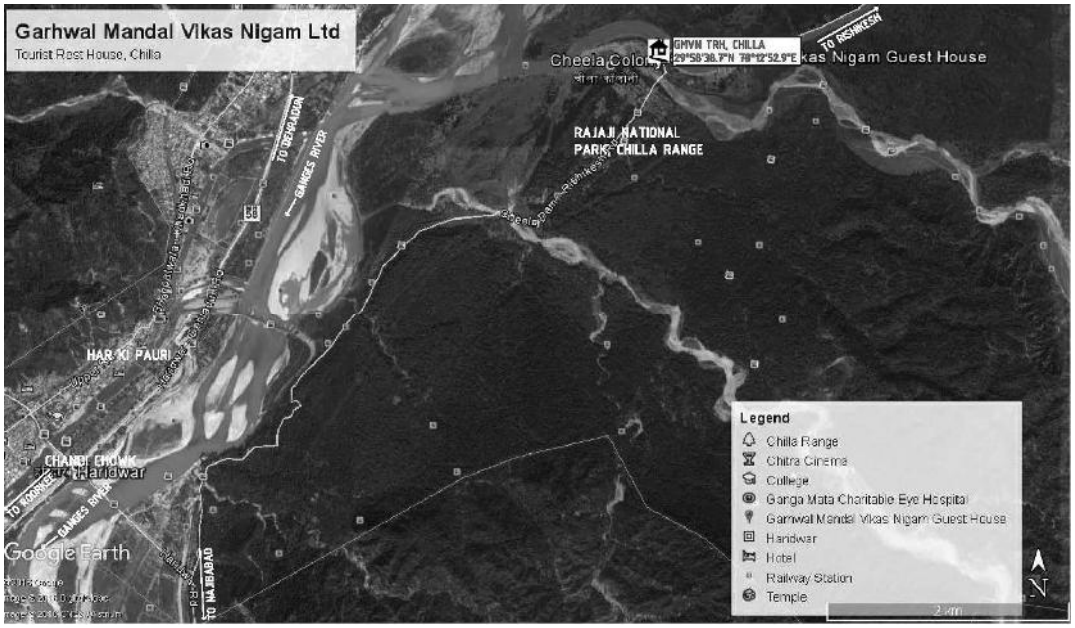
Sl. No.	Description	Image
18.	**MASSAGE TABLE with SHIRODHARA YANTRA (Electrical)** Table will be made of Polished seasoned Teak- wood - 2 meter long and 75cm wide, with a little slant towards foot end, fitted with stainless steel sink for Oil Collection, with Filtration and Thermostatic Heat Co trol arrangements and electrical control system of Flow of Oil Drops and Movement of oil pipe fitted with electrical Timer	
19.	**SARVANG DHARA SNEHAN YANTRA (Electrical) of Pizhichil or equivalent make** Dhara Patti. (Table): Wooden table top with Stainless steel sink made of One piece wooden boar h a v i n g 5cm high rim all around the top and mounted on carved hard-wood legs. Dhara System. 1. Sarvang dhara frame made of stainless steel tube with holes for oil flow on the body. 2. Shirodhara system made of Stainless Steel. tube of adjustable height with a system to enable Swin s/spray oil horizontally on the forehead automatically. Snehan Yantra. Fitted with, Two motors for pump, Oil filtration and oil Collecting chamber with Digital temperature controller.	
20.	**SARVANG VASHPA SWEDAN YANTRA (with Trolley)** Steam is generated electrically & passes through rubber / copper pipes in the box from both sides and can be controlled by gate valves. Made of seasoned Hardwood and water proof ply, with Acrylic window on both sides. Steam-Generator. : Heavy Aluminum body, with Safety valve, with Steam control valve & Pressure Gauge. Timer. : 60 minutes, Power. : 3kw, Heater. 220V AC., Temperature Controller cum Indicator.	

Sl. No.	Description	Image
	Size. : 75" long x 40" wide x 45" high. Finish. : Inside painted and outside polished	
21.	**SARVANG VASHPA SWEDAN YANTRA (Box Type)** Made of seasoned Hardwood and water proof ply. Steam-Generator. : Heavy Aluminum body, with Safety valve, with Steam control valve & Pressure Gauge. Timer. : 60 minutes, Power. : 3kw, Heater. 220V AC, with Temperature Controller cum Indicator. Size. : 84" long x 32" wide x 38" high. Finish. : Inside painted and outside is polished natural.	
22.	**AARSH VASHPA SWEDAN YANTRA (with Steamer)** Comfortable chair, constructed of tubular pipe and finished in oven baked enamel is fitted with solid wood seat having electrically Steam Generating unit for fomentation, with foam padded back with side arm supports. Power 500watts. 220V AC.	
23.	**VAMAN PEETH (Chair + Table)** Vaman Peeth set comprises of a tubular steel Vaman Table and a Chair with reclining back. Vaman table will be fitted with One stainless steel bucket, 2 Glass holders & two utility bars. One 5 litters measuring Jar will be provided for Vaman kriya. Table will be fitted with four wheels for mobility with reclining back; seat will be fitted with solid wooden rungs for comfort, with powder coated finish.	
24.	**NASYA PEETH/ Chair** Tubular steel chair with wooden rungs seat and back, with adjustable head support. Frame. Constructed of square tube and finished oven baked enamel. Seat & Back. : Well polished seasoned Teak-wood rungs, adjustable reclining back and fitted with adjustable Head support	
25.	**Veerachan Chair** Comfortable commode chair, constructed of square Pipe and finished in oven baked enamel, fitted with hard wood seat with stainless steel commode and back with adjustable recline, with teak wood rungs, and side-arm supports, mounted on 10cm heavy duty castors	

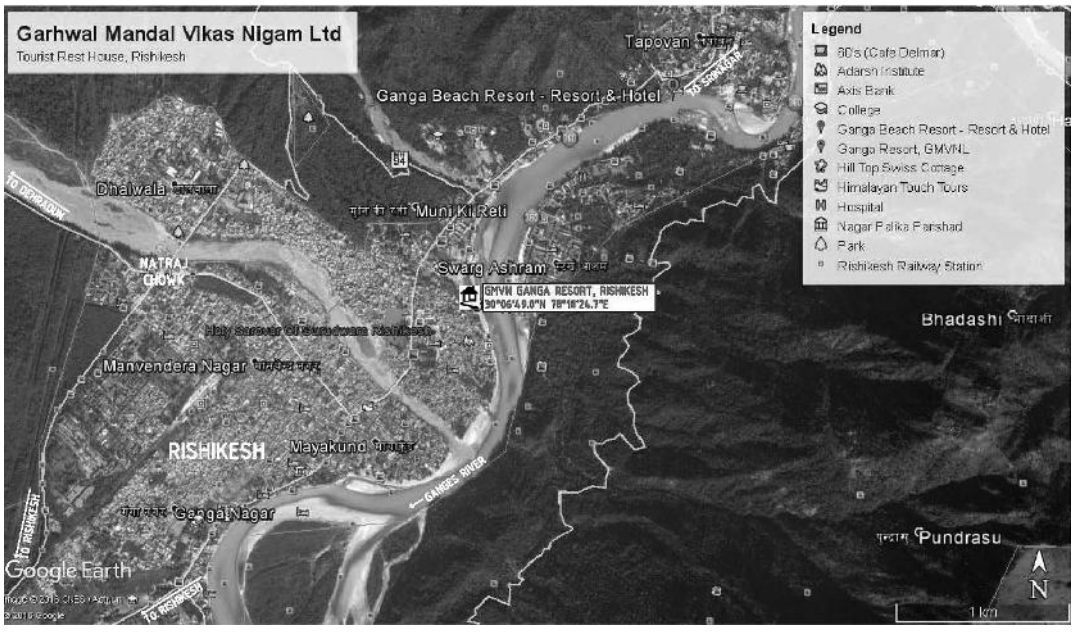
Sl. No.	Description	Image
26.	**VIDYUT (I.R) BATH CABINET(Taap Swedan, 1200W)** Infra-Red bath cabinet, fitted with Eight I.R Lamps and intensity control regulators, Cabinet, with Digital temperature controller made of seasoned good quality hardwood & ply-board, with adjustable seat height. Natural Wood polish finish from outside & enamel painted inside	
27.	**SAUNA CABIN DELUXE / TAAP SWEDEN YANTRA** Prefabricated royal wooden cabin, suitable for Two persons of size 180cm wide x 150cm deep x 190cm high, thermally insulated ceiling and wall sections made of hard wood. Sauna cabin is supplied with 6 Kw Stove and stove guar, Control Panel, Internal light, Sauna Rocks, Two layers Bench, Digital temperature controller, Stain-less steel Bucket & wooden ladle. (Three Phase 440V.AC power supply)	

Figure 2 Locations of TRH Facilities Selected for Yoga Centers and Panchkarma Facilities

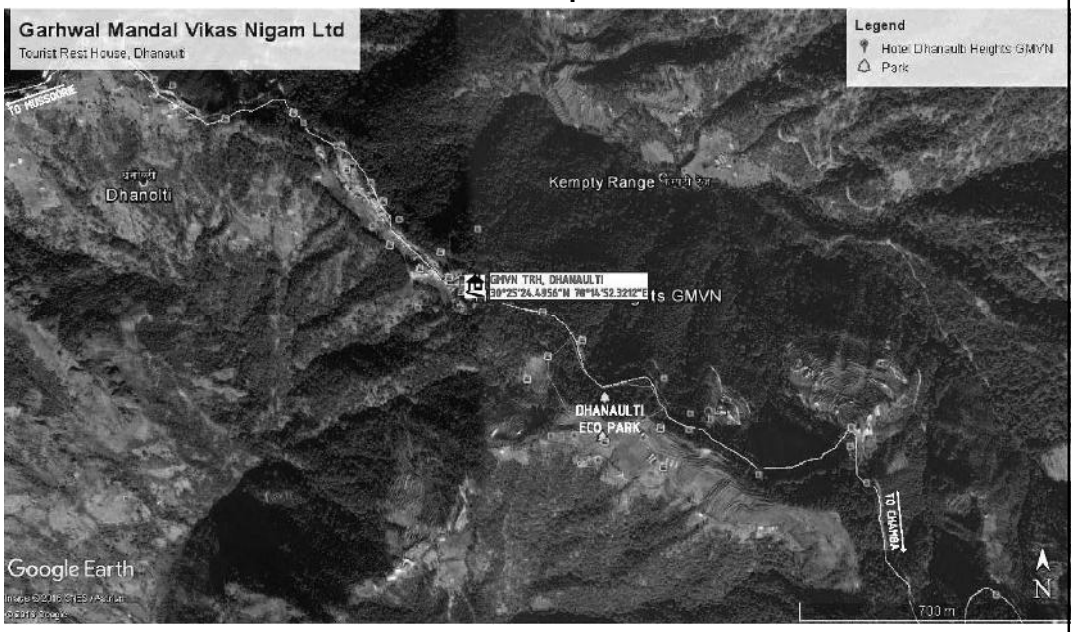
1- Location Map of Chilla Near Haridwar



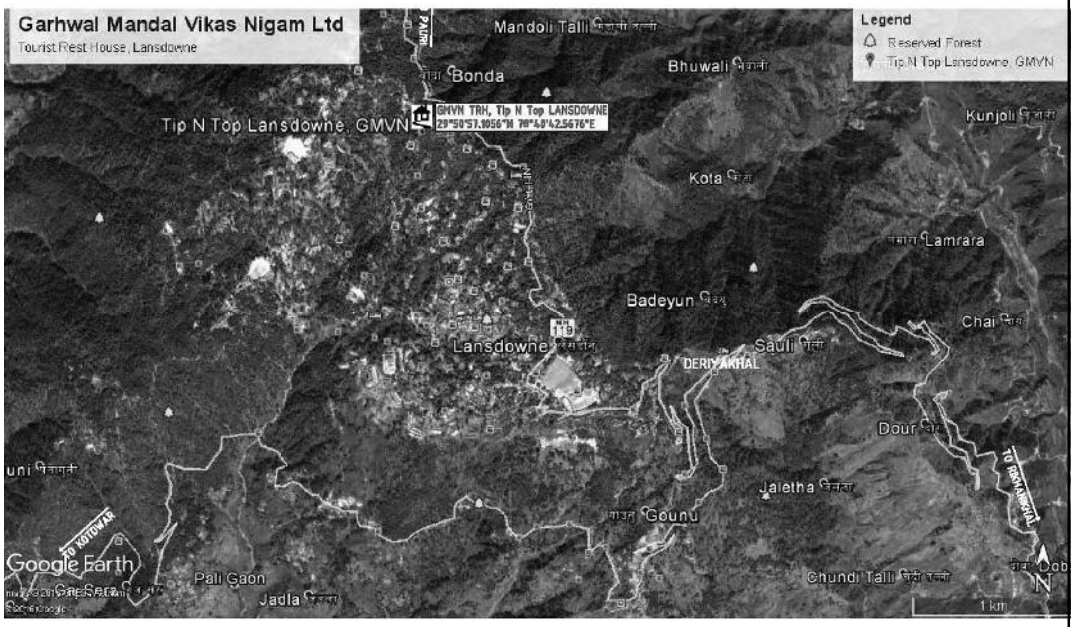
2- Location Map of Ganga Resort, Rishikesh



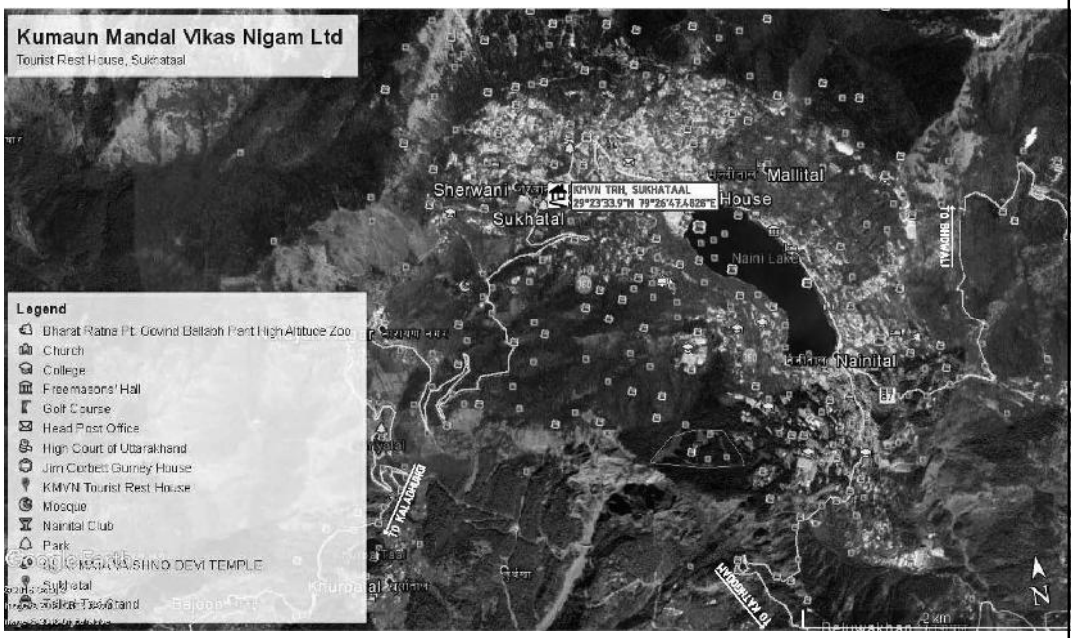
3- Location Map of Dhanaulti



4- Location Map of Lansdowne



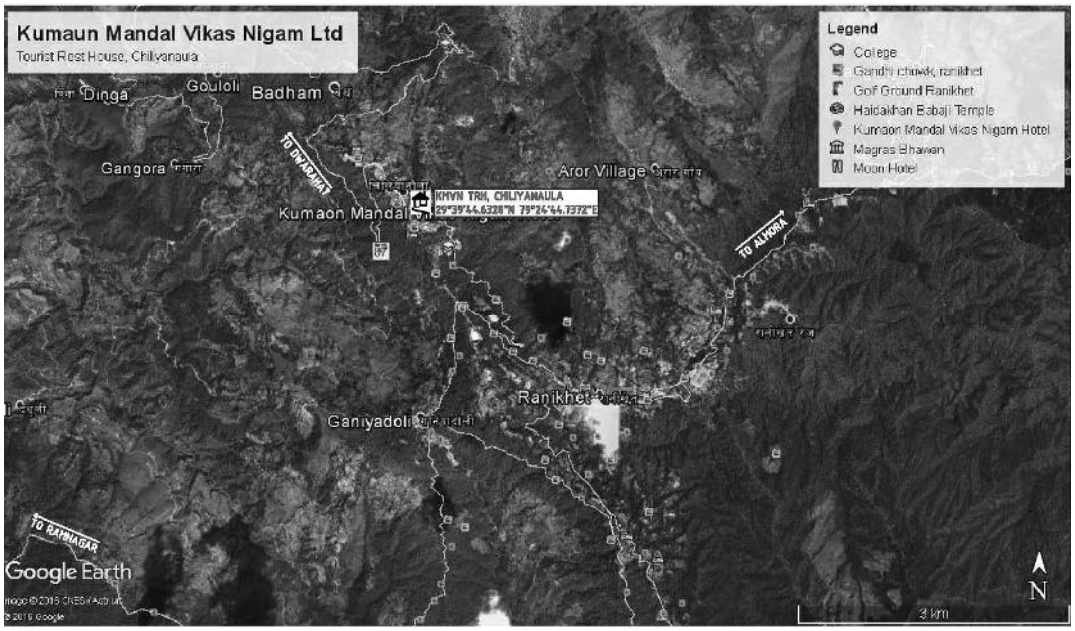
5- Location Map of Sukhatal



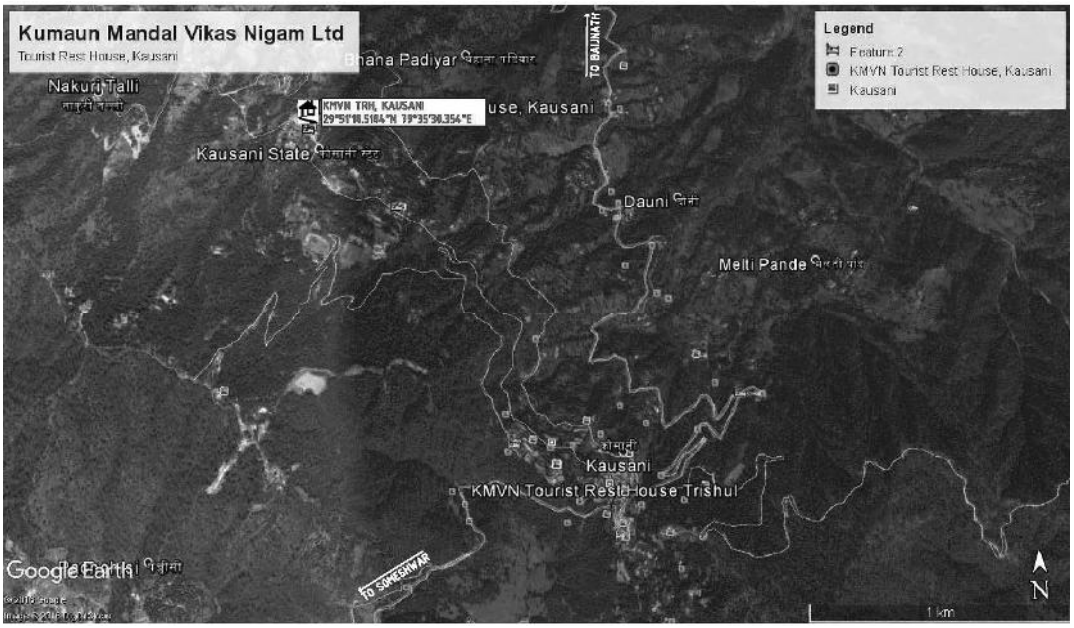
6- Location Map of Naukuchiyatal

7- Location Map of Mohaan

8- Location Map of Chiliyanaula



9- Location Map of Kausani



10- Location Map of Choukori

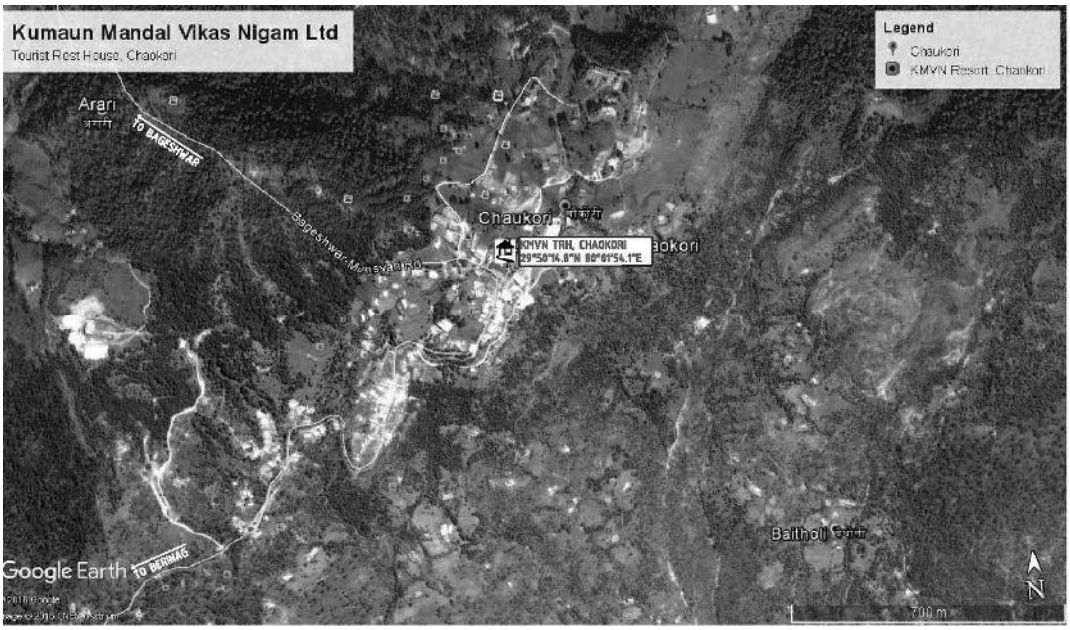
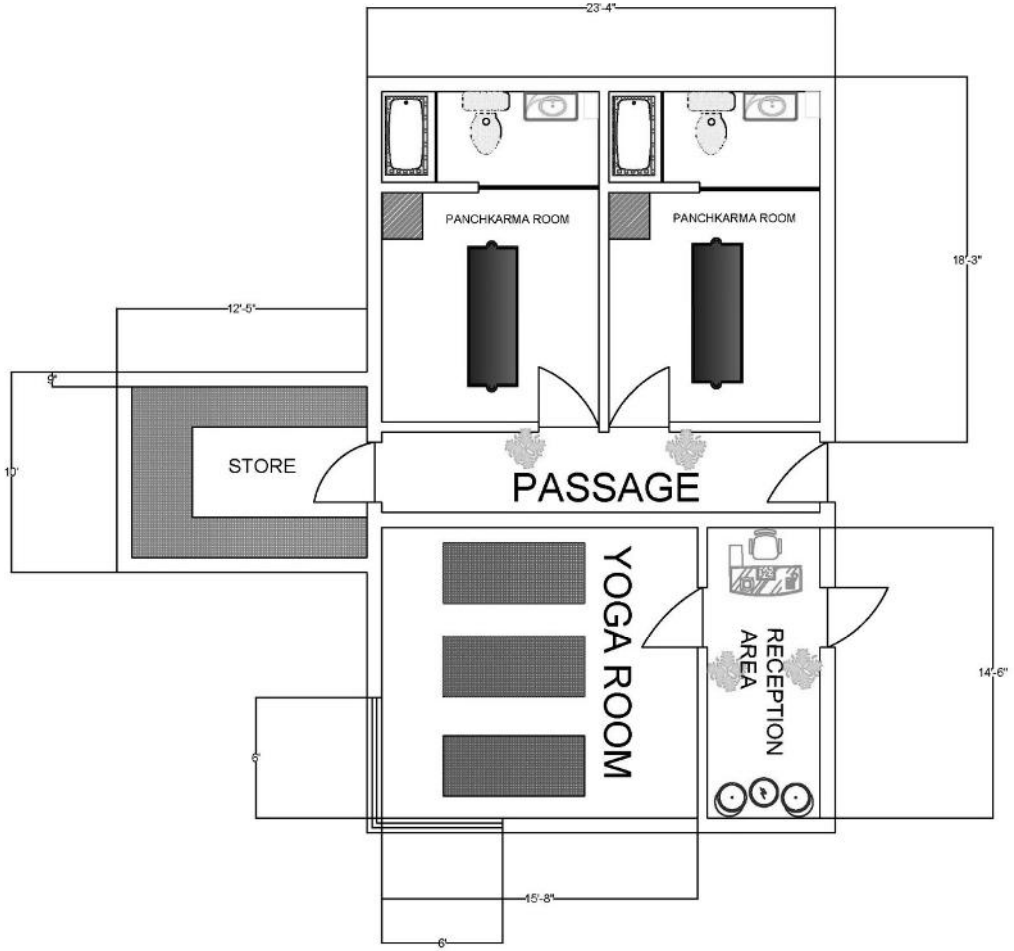
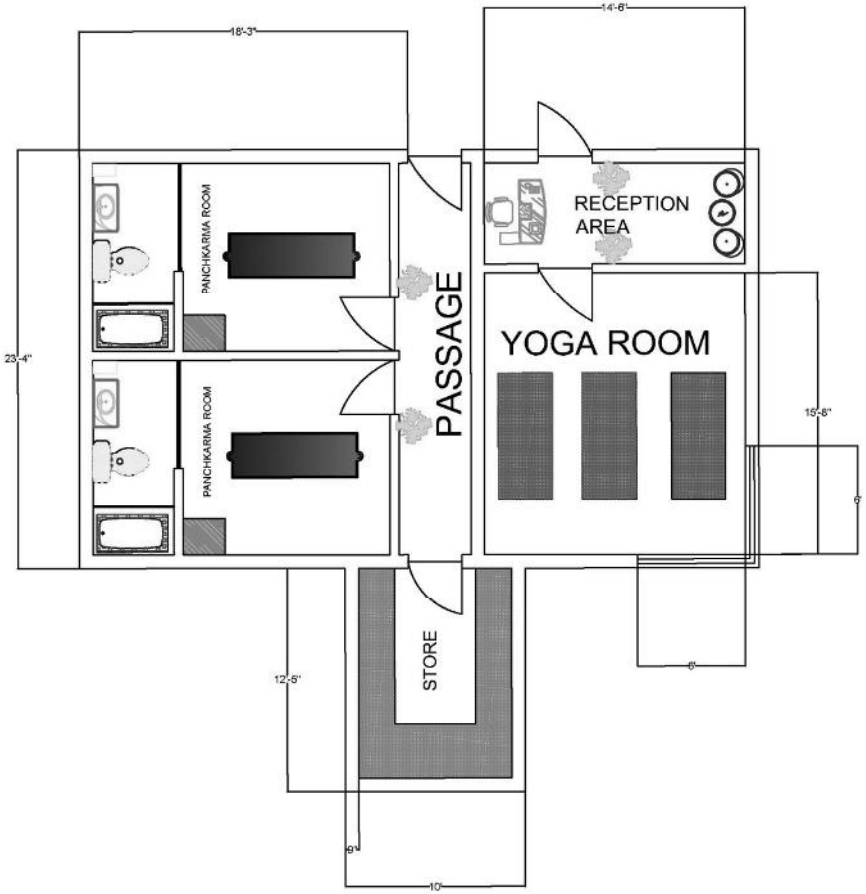


Figure 3 Layout Plans for Panchkarma Traditional Medicine and Yoga Centers

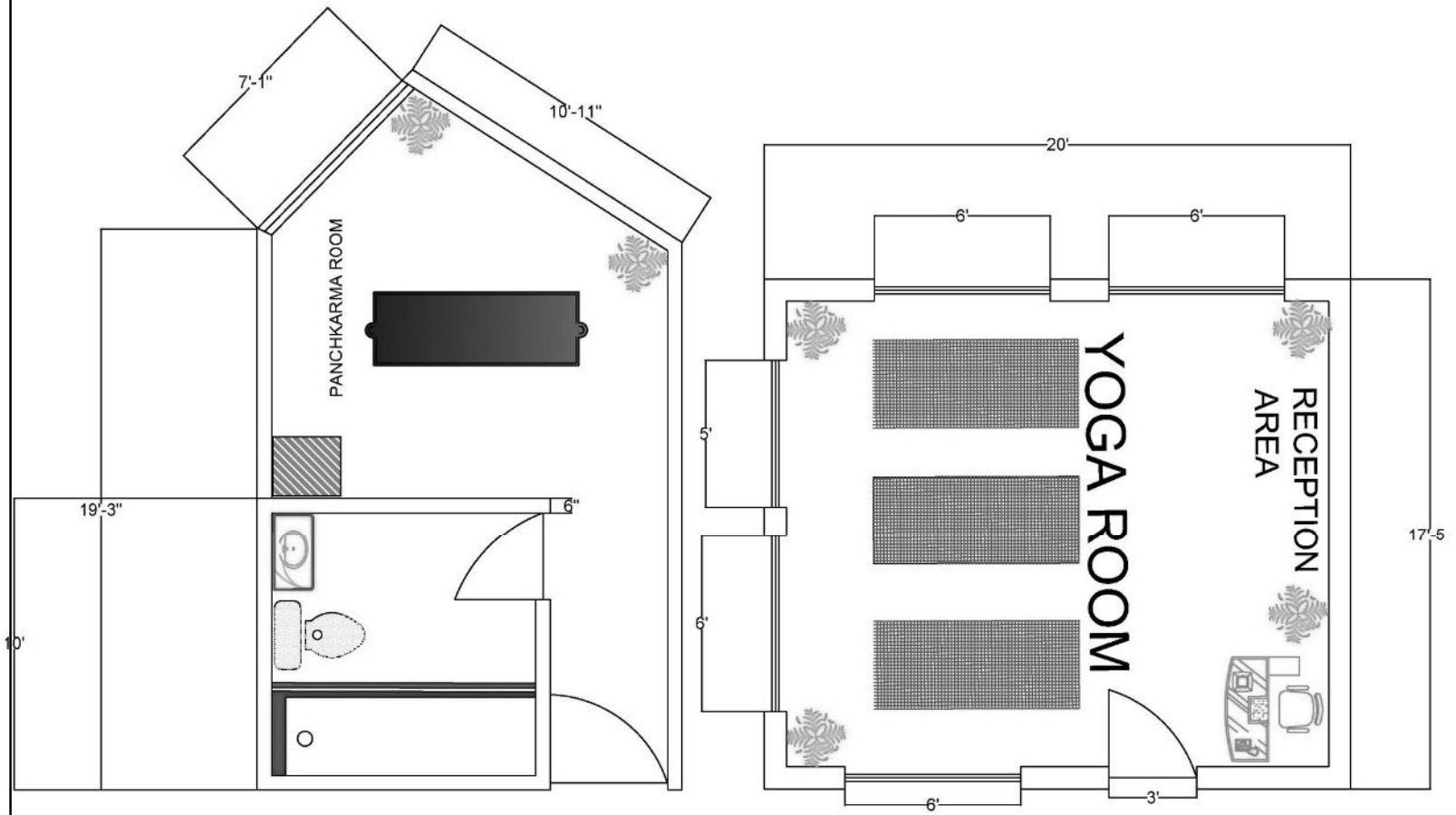
1. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at GMVN Chilla



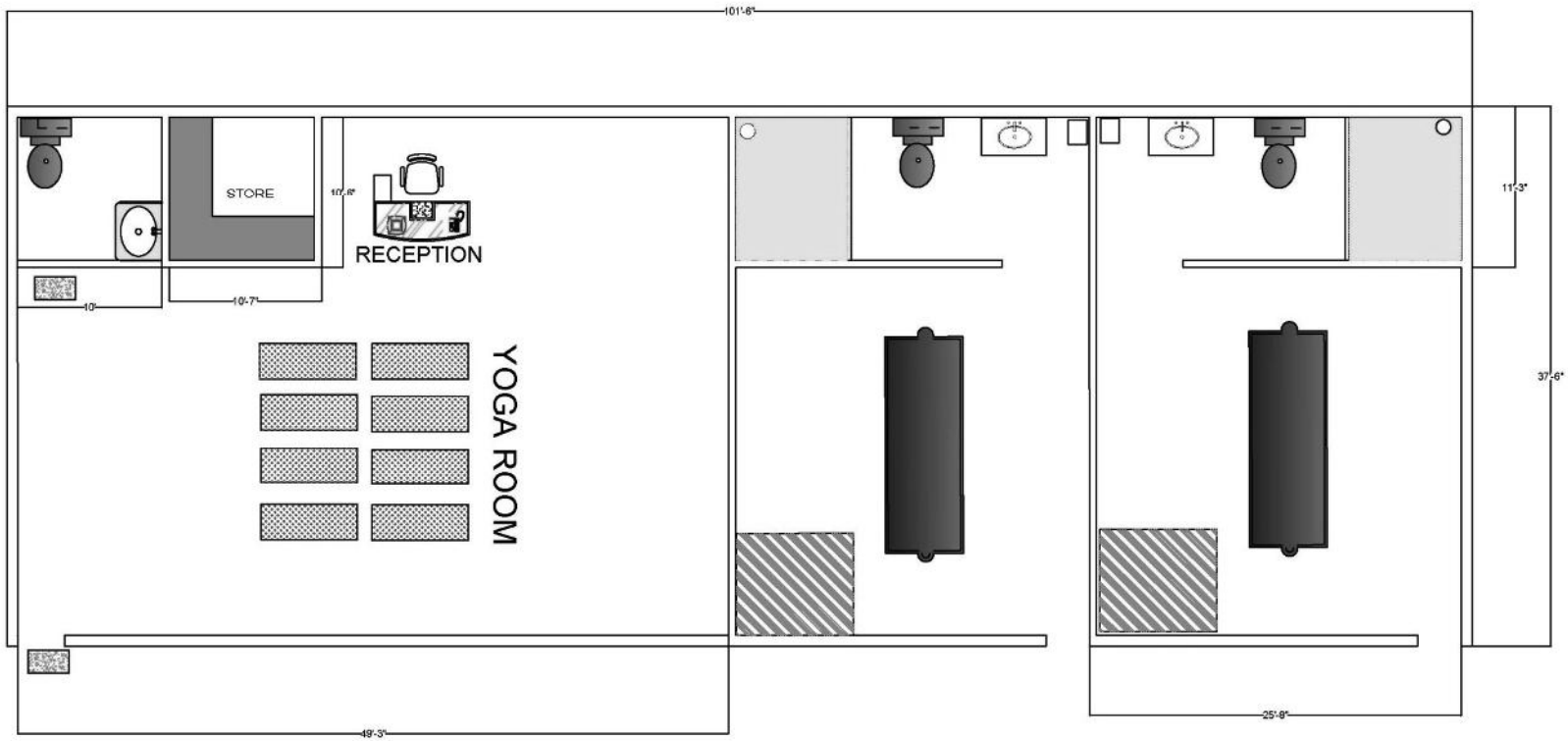
2. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at GMVN Ganga Resort, Rishikesh



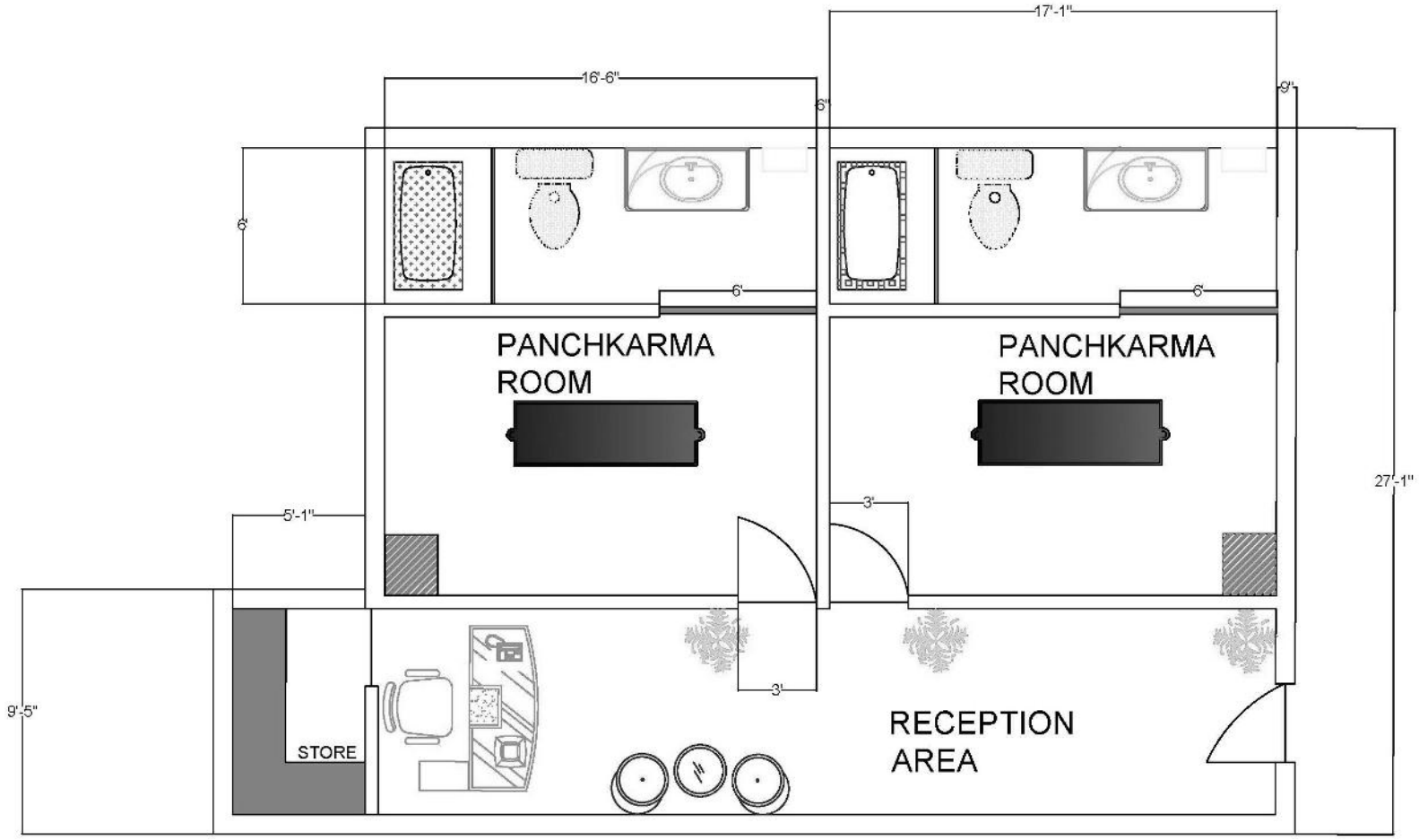
3. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at GMVN Dhanaulti



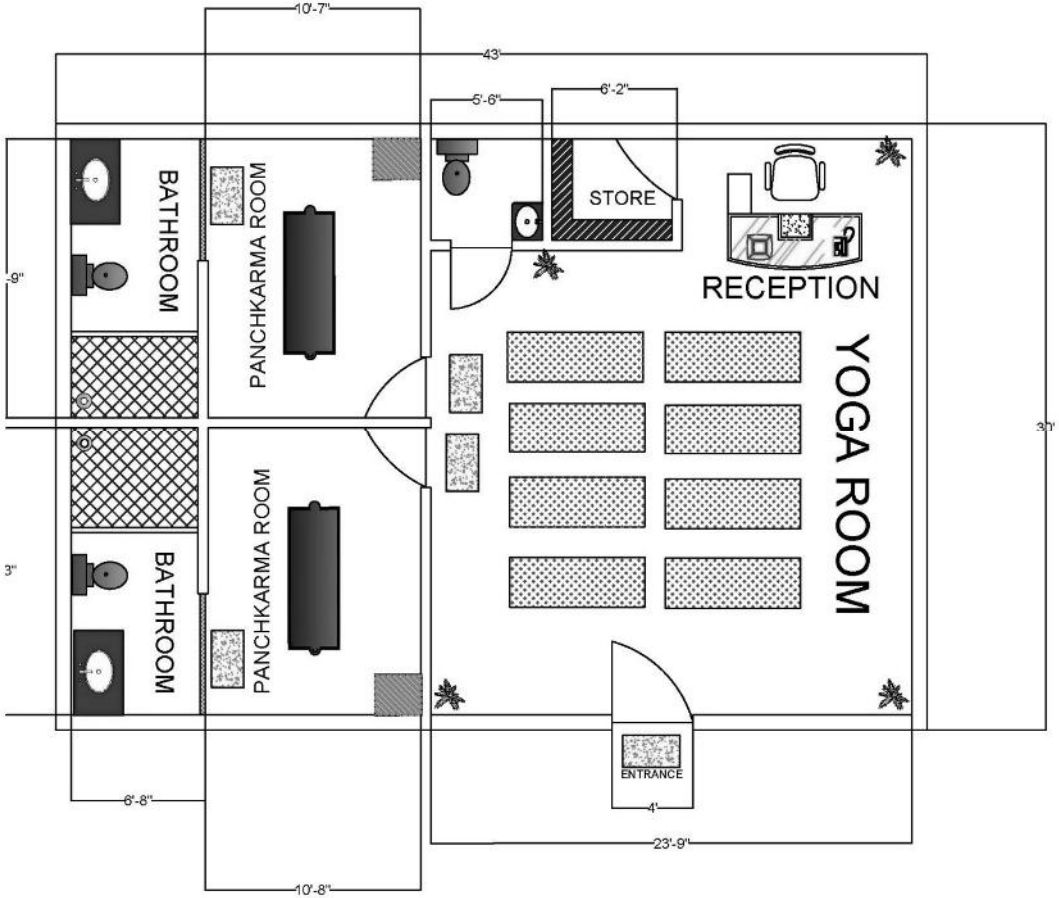
4. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at GMVN Lansdowne



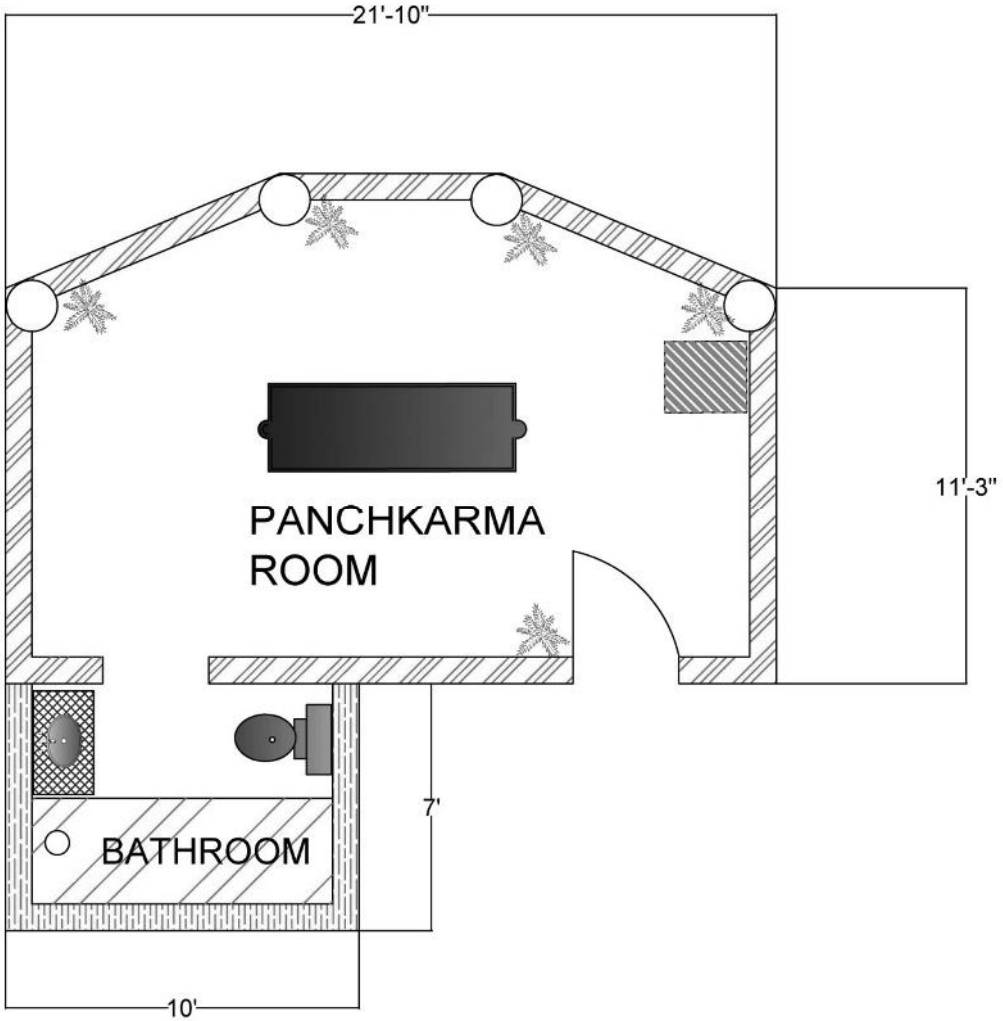
5. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at KMVN Sukhatal



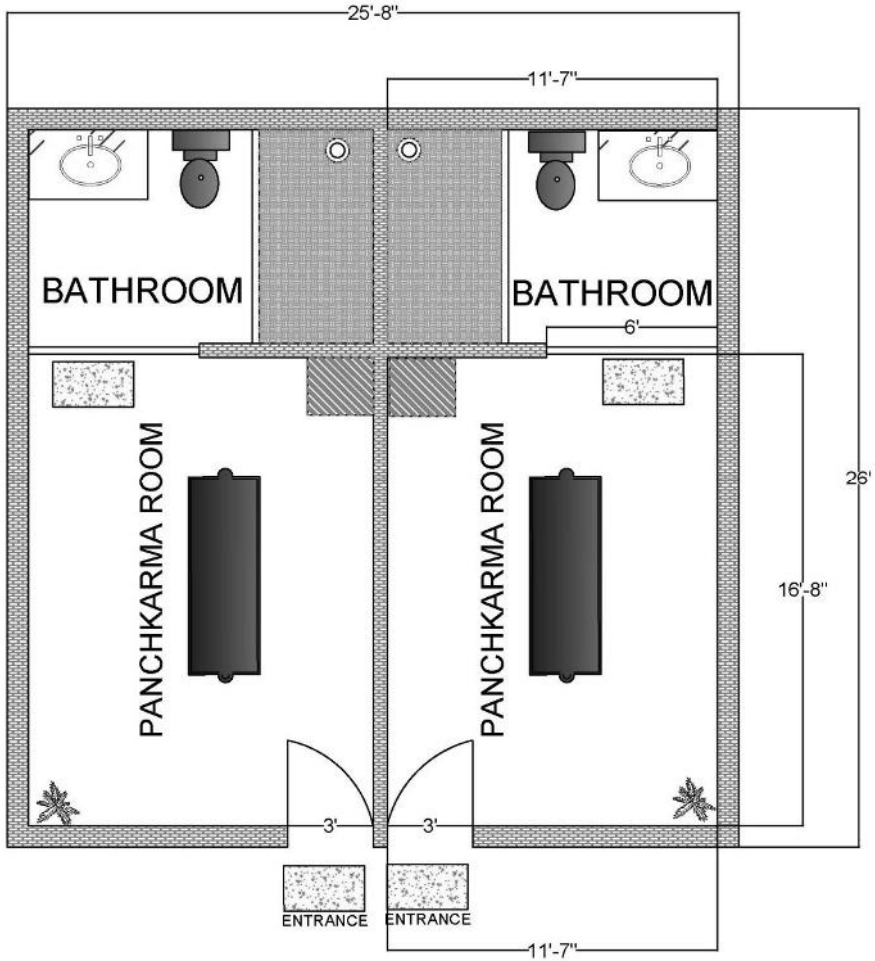
6. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at KMVN Naukuchiyatal



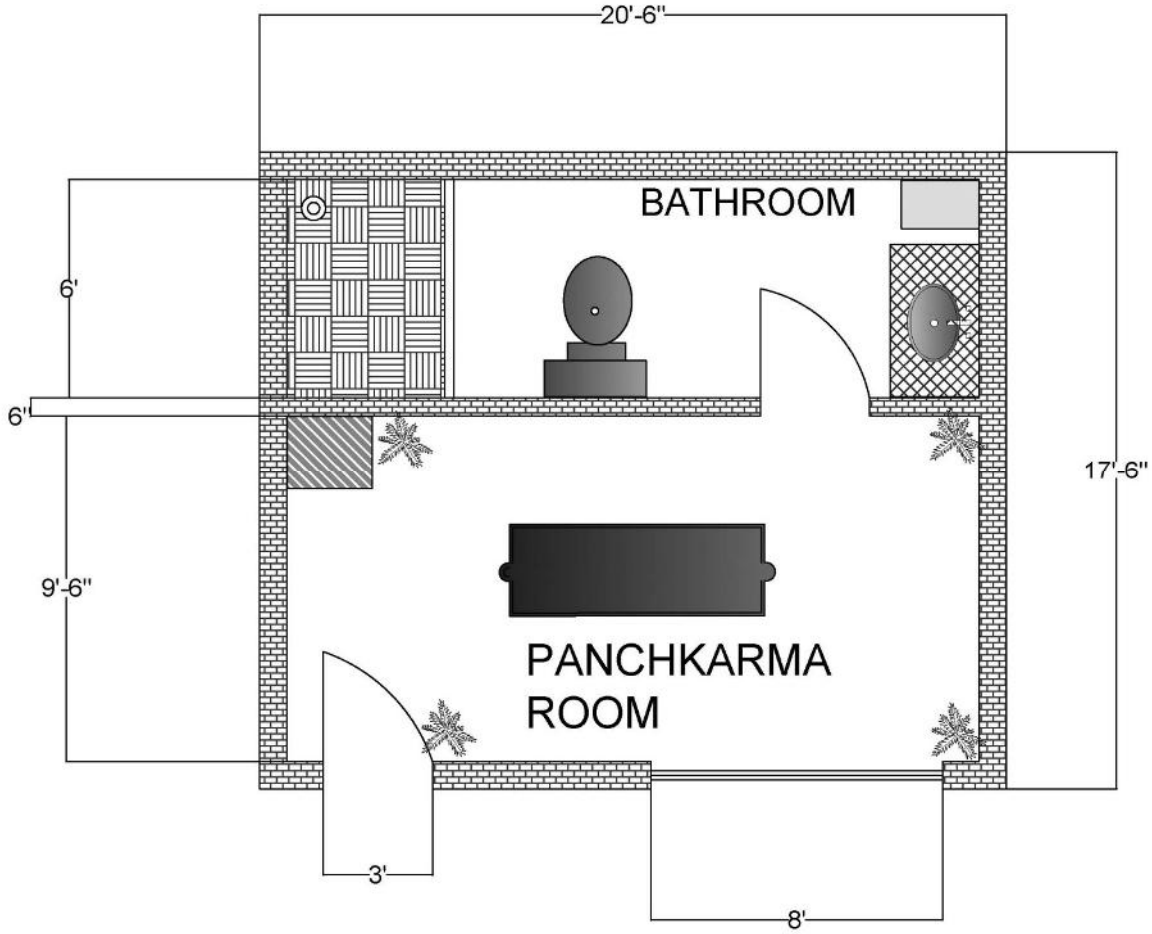
7. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at KMVN Mohaan



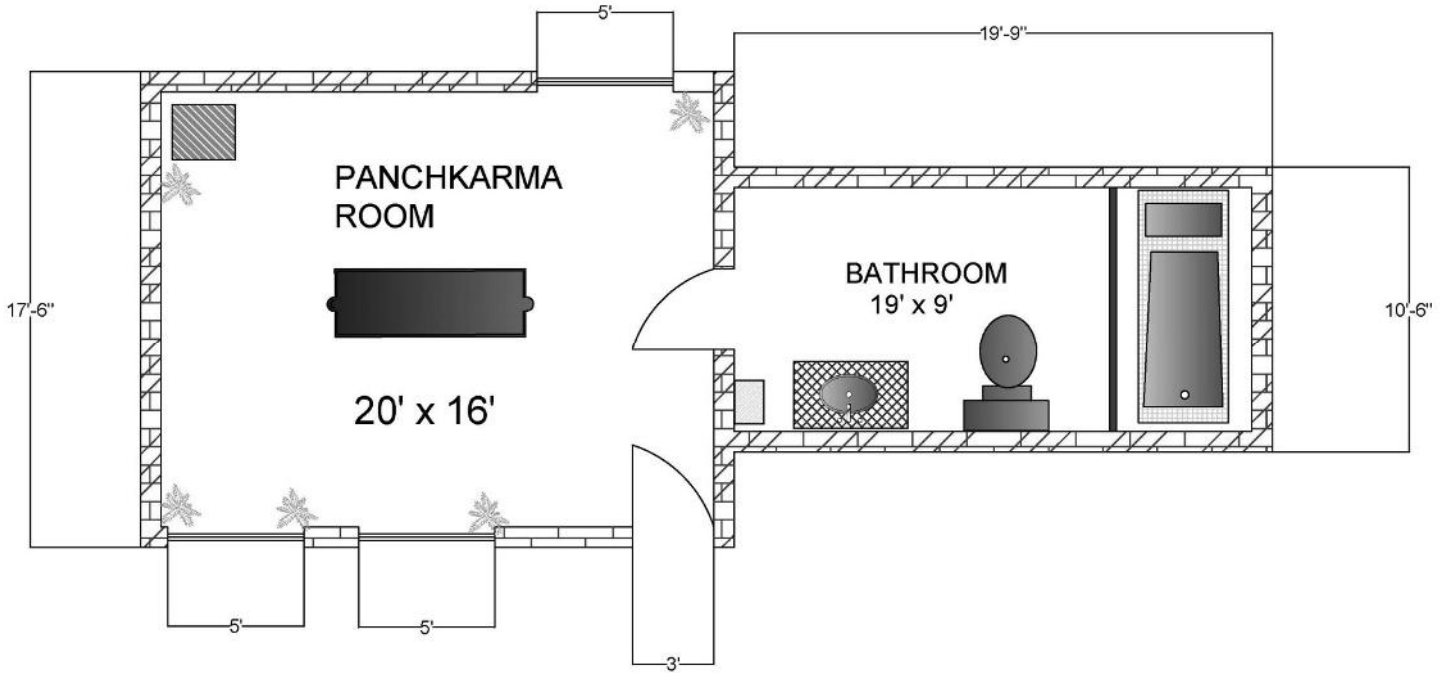
8. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at KMVN Chiliyanaula



9. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at KMVN Kausani



10. Layout Plans for Panchkarma Traditional Medicine and Yoga Centers at KMVN Chaokori



5. Cost of Sub-project

36. The sub-project cost has been summarized below in **Table-5.**

Table 5: Summary of BoQ and Cost for Yoga Centers and Traditional Medicine Panchkarma

MAXTECH INFRASTRUCTURE PVT. LTD.				
Project	**Development of Traditional Medicine Panchkarma and Yoga Centre Project at in the State of Uttarakhand**			
Client	**Uttarakhand Tourism Board, Govt. of Uttarakhand**			
Summary of BOQ for All Locations				
Sl. No.	**Name of the Resort/ Location**	**Area in Sqm.**	**Area Details**	**Amount (Rs)**
1	Chilla Resort	83	Reception -1, Panchkarma Room-2, Bathroom-2, Yoga Room-1, Store-1, Corridor-1	29,99,546.00
2	Ganga Resort	83	Reception -1, Panchkarma Room-2, Bathroom-2, Yoga Room-1, Store-1, Corridor-1	29,93,439.00
3	Dhanaulti Resort	65	Reception & Yoga Room -1, Panchkarma Room-1, Bathroom-1	25,94,485.00
4	Sukhatal Resort	96	Reception -1, Panchkarma Room-2, Bathroom-2, Store-1	30,48,142.00
5*	**Naukuchiyatal**	**120**	**Reception -1, Panchkarma Room-2, Bathroom-3, Yoga Room-1, Store-1**	**82,45,035.00**
6*	**Lansdowne**	**126**	**Reception -1, Panchkarma Room-2, Bathroom-3, Yoga Room-1, Store-1**	**78,46,055.00**
7	Mohaan Resort	29	Panchkarma Room-1, Bath Room-1	15,21,612.00
8	Kausani Resort	58	Panchkarma Room-2, Bath Room-2	23,13,432.00
9	Chiliyanaula Resort	63	Panchkarma Room-2, Bath Room-2	24,56,710.00
10	Chaokori	52	Panchkarma Room-1, Bath Room-1	28,72,465.00
		775	Total Amount (Rs.)	368,90,921.00
*New room for yoga and Panchkarma centre shall be built only in these 02 locations. In the remaining 08 locations, Yoga Centers and Panchkarma facilities are planned in the existing buildings after interior refurbishment and slight alterations.				

6. Implementation Schedule

37. The implementation period for the proposed sub-project is 24 months. Detailed design of the project has been completed. The bidding process and appointment of Contractor(s) in progress and 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 ten sub-project sites are located close to urban areas and at popular tourist's destinations of Uttarakhand in Garhwal and Kumaon regions of the State. All the ten sites selected for Yoga Center and Panchkarma facilities are at the outer skirts of urban centers and traffic is low. There are no industrial establishments near the sub-project sites. The ambient air quality and noise data for the sub-project site locations is not available. But the levels are expected to be well within the stipulated limits. During pre construction phase ambient air quality will be monitored at each site of the sub-project.

40. It was observed that ambient noise scenario in the study area is quite low in general as these all TRH facilities where Yoga Centers and Panchkarma are planned are calm areas. There are no industrial establishments in and around the sub-project sites. Being located in the outskirts and in the absence of any major industry noise pollution from any commercial or vehicular activities is not anticipated. Ambient noise levels will be monitored at each sub-project site during pre construction phase.

41. **Climate:** The State of Uttarakhand, with its highly varying topographical features, has shown equally variegating climatic conditions, ranging from hot and sub-humid tropical in the southern tract of Bhabhar to temperate, cold alpine, and glacial climates in the northern part of the high mountains. Factors such as elevation, slope, and proximity of glaciers, forests, mountain peaks and ridges and direction of mountain ranges together give rise to the great variations in climatic conditions, even at the micro and local levels. These attributes determine the temperature range as well as the distribution of rainfall. However, the overall climatic condition in the State is governed by the southwest monsoon. It has a sub-tropical to temperate climate, with three pronounced seasons; summer, winter, and monsoon. The hilly terrain of the Himalayan region has snow cover and is severely cold during winter with snowfall normally occurring during the months of December to March. The climatic conditions of Almora, Nainital, Pithoragarh, Chamoli, Uttarkashi, Pauri and Dehradun are humid and cold.

42. **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 40°C and the minimum temperature falls to about -2°C. The **Table-6** shows month wise weather in Kumaon Region and **Table-7** shows month wise variation in Garhwal region. The temperature pattern based on long term data has also been shown in **Figure-4** below:

Table 6: Average Monthly Temperature and Rainfall data for Kumaon Region

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average high °C (°F)	20 (68)	22.8 (73)	28.7 (83.7)	34.9 (94.8)	38.1 (100.6)	37 (99)	32.9 (91.2)	32.4 (90.3)	32.2 (90)	31.1 (88)	26.9 (80.4)	21.8 (71.2)	29.9 (85.8)
Daily Mean °C (°F)	13.3 (55.9)	15.9 (60.6)	21.1 (70)	27.1 (80.8)	30.6 (87.1)	31.1 (88)	28.7 (83.7)	28.4 (83.1)	27.5 (81.5)	24.5 (76.1)	19.4 (66.9)	14.7 (58.5)	23.5 (74.3)
Average Low °C (°F)	6.6 (43.9)	8.9 (48)	13.5 (56.3)	19.3 (66.7)	23 (73)	25.2 (77.4)	24.7 (76.5)	24.5 (76.1)	22.9 (73.2)	17.9 (64.2)	12 (54)	7.7 (45.9)	17.2 (63)
Rainfall mm (inches)	26.6 (1.047)	26.1 (1.028)	21.3 (0.839)	15.2 (0.598)	31.9 (1.256)	140.9 (5.547)	318.4 (12.535)	330.3 (13.004	172. (6.78)	34.4 (1.354)	4.6 (0.181)	10.6 (0.417)	1,132.4 (44.583)

Source: Wikipedia 2016

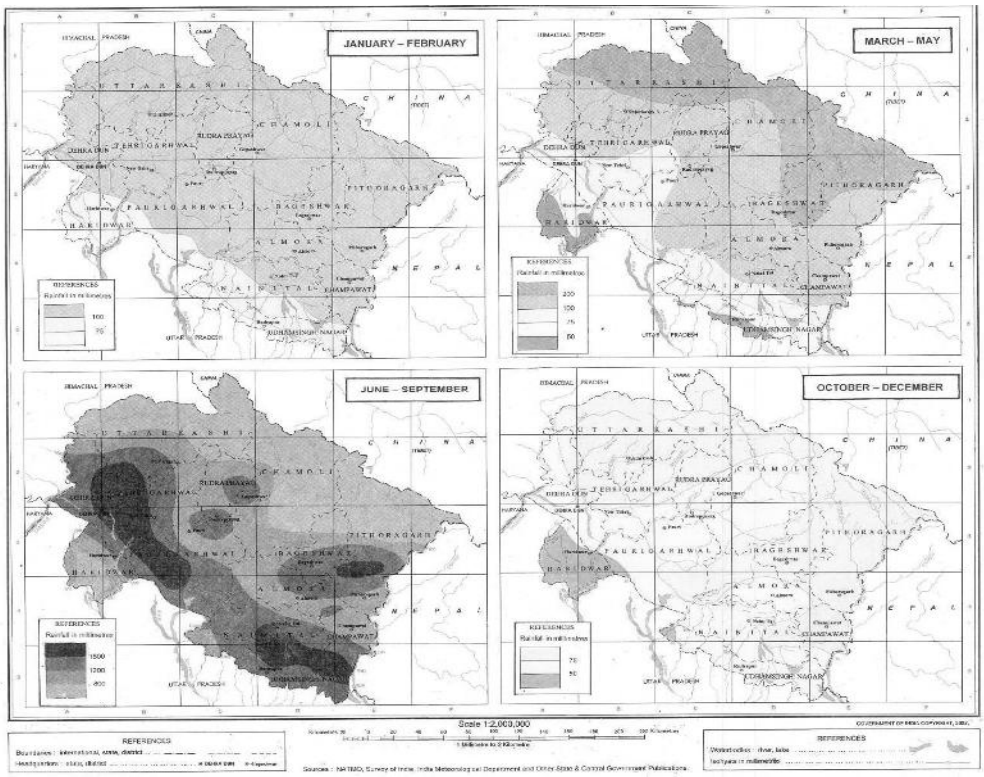
Table 7: Average Monthly Temperature and Rainfall data for Garhwal Region

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Record high °C (°F)	24.6 (76.3)	31.2 (88.2)	37.2 (99)	40.8 (105.4)	42.8 (109)	44.6 (112.3)	40.6 (105.1)	37.2 (99)	36.6 (97.9)	36.1 (97)	30.6 (87.1)	27.4 (81.3)	44.6 (112.3)
Average high °C (°F)	19.3 (66.7)	21.5 (70.7)	26.4 (79.5)	32.1 (89.8)	35.6 (96.1)	34.8 (94.6)	30.5 (86.9)	29.4 (84.9)	29.7 (85.5)	28.5 (83.3)	25.0 (77)	21.1 (70)	27.8 (82)
Average low °C (°F)	6.0 (42.8)	7.8 (46)	12.0 (53.6)	16.7 (62.1)	20.7 (69.3)	23.0 (73.4)	22.8 (73)	22.4 (72.3)	20.8 (69.4)	15.7 (60.3)	10.4 (50.7)	6.8 (44.2)	15.4 (59.7)
Record low °C (°F)	−1.1 (30)	−1.1 (30)	2.2 (36)	7.2 (45)	11.3 (52.3)	13.1 (55.6)	13.2 (55.8)	18.0 (64.4)	14.3 (57.7)	8.4 (47.1)	2.8 (37)	0.0 (32)	−1.1 (30)
Average precipitation mm (inches)	55.0 (2.165)	58.8 (2.315)	49.0 (1.929)	22.5 (0.886)	41.7 (1.642)	201.8 (7.945)	672.6 (26.48)	728.2 (28.669)	296.5 (11.673)	49.8 (1.961)	8.6 (0.339)	24.4 (0.961)	2,208.9 (86.965)

Source: Wikipedia 2016

43. **Rainfall:** The entire Uttarakhand state 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 Kumaon and Garhwal regions of State have been shown in Tables 10 and 11 above. It is clear from the above tables that Garhwal region receives more rainfall than Kumaon region. In the Garhwal region rainfall is almost double of Kumaon. All the sub-project locations being in cooler and open areas are likely to get peak rainfall recorded. The average annual rainfall is around 2200 mm in Garhwal Region and around 1100 mm in Kumaon region. The seasonal rainfall pattern of Uttarakhand is given below in **Figure-4.**

Figure 4: Seasonal Rainfall Pattern of Uttarakhand



44. **Humidity**: Based on long-term climatological data of the Uttarakhand State, it is found that Relative Humidity increases rapidly with the onset of monsoon and reaches maximum (about 85 %) 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 43% 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 monthly humidity variation is shown in **Table-8** for Kumaon and Garhwal region.

Table 8: Average Monthly Variation of Humidity Levels in Uttarakhand

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Garhwal Region	72	66	57	46	48	66	85	86	81	69	68	71	67.9
Kumaon Region	69	65	61	43	41	71	89	84	87	71	73	70	68.7

Source: Wikipedia 2016

45. The dominant wind direction in the Uttarakhand 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.

46. **Topography and Soils**

Major Physiographic zones: The Uttarakhand Himalayas are divided into the following distinct non-montane and montane physiographic zones as follows:

a. Non-montane

i. Bhabhar: This is a level surface zone at the foothills of the Himalayas 34 km wide where the Himalayan torrents rush down from the steep slopes and disappear under boulders and gravels due to the extremely porous soil type of Bhabhar.

ii. Tarai: Situated below the Bhabhar and parallel to it. The Tarai is a marshy and damp tract (once 80-90 km wide) containing fertile soils with good water retention capacity.

b. Montane

i. Sub-Himalayas: Called Sub-Himalayas because it possesses the least of Himalayan features. It consists of two zones, the Shivaliks - the youngest of the Himalayan ranges and the Doon (flat longitudinal structural valleys) to the north of Shivaliks. The Shivaliks extend in a narrow varying width of 6 to 30 km with altitudes of 300 to 1000 m.

ii. Mid Himalayas: This zone extends in a varying width of 60-90 km in an abrupt rise in elevation between 1000 m to 3000 m.

It contains two types of physiographic sub-units

- The Himachal ranges
- The Himachal valleys and lake basins.

iii. Greater Himalayas: This zone has a varying width of 40-60 km. The altitude varies between 3000-7000 m. Except for lower valleys; this zone is perpetually covered with snow hence called Himadri. The region covers glacial landforms above 3000 m.

iv. Trans-Himalayas: Also known as the Tethys Himalayas and Indo-Tibet plateau, the region is in the rain-shadow of the Greater Himalayas and is therefore a cold desert. It slopes down to the Yarlung tsangpo (Brahmaputra) river valley in Tibet.

47. The altitude of the sub-project sites is given in **Table 9.**

Table 9: Elevation of Sub-project Sites

Sl. No.	Location	Elevation (m) Above Mean Sea Level
1	Chilla Resort	304
2	Ganga Resort	346
3	TRH Dhanaulti	2284
4	TRH Lansdowne	1795
5	TRH Mohaan Resort	505
6	TRH Chiliyanaula	1829
7	TRH Kausani	1764
8	TRH Choukori	1775
9	TRH Naukuchiyatal	1270
10	TRH Sukhatal	2043

48. The soils of Uttarakhand differ from one place to another place depending on elevation. The soils of this 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. The district wise soil types have been explained in the following **Table-10.**

Table 10: Soil Types in Sub-project Districts

Sl. No.	Zone	Location	Soil Type	District
1.	Up to 1000 m	Tarai , Irrigated	Alluvial	Udham Singh Nagar, Haridwar
		Bhabhar Irrigated	Alluvial	Nainital, Dehradun and Pauri Garhwal
		Irrigated lower hills (600-1000 m)	Alluvial Sandy Soil	Champawat, Nainital, Pauri Garhwal, Dehradun, Tehri Garhwal
		Rain-fed lower hills (600-1000 m)	Residual Sandy Loam	Champawat, Nainital, Pauri Garhwal, Dehradun, Tehri Garhwal, Bageshwar
2	. Zone B (1000 -1500m)	Mid hills south aspect (1000-1500 m	Sandy Loam	Champawat, Nainital, Almora, Dehradun, Tehri Garhwal, Bageshwar
3	Zone C (1500- 2400m)	High hills (1500-2400 m)	Red to dark	Pithoragarh, Almora, Chamoli, Bageshwar
4	Zone D >2400 m	Very high hills	Red to dark Black clay	Pithoragarh, Chamoli, Uttarkashi

49. Since sub-project sites are spread all over the state. The soil types as mentioned above prevail.

Surface water and Ground water

50. The region of Uttarakhand is well drained by numerous rivers and rivulets locally known as Gad, Gadhera and Nala. The water resources of this region are of singular importance not only for the region but also for the whole Gangetic plains of north India. There are three main river systems are: (i) the Bhagirathi – Alaknanda basin – Ganges basin, (ii) The Yamuna – Tons basin, and (iii) the Kali basin. The Ganges system drains the major part of the Garhwal region, except the western part of Uttarkashi district, and the western part of Garhwal Himalayas from an altitude of 7,138 m meet at Devprayag and flow as the Ganges thereafter. The Bhagirathi is the main stream while the Alaknanda, Saraswati, Dhauli Ganga, Berahi Ganga, Nandakini, Mandakini, Madhu Ganga, Pindar, Atagad, Bhilangana, Jad Ganga, the Kaldi Gad and the Haipur are the main tributaries to the Alaknanda and/or Bhagirathi, ultimately contributing to the waters of Ganges. The Nayar, which drains more than a half area of the Garhwal district, is an important tributary of the Ganga. The Yamuna-Tons system is also located in the Garhwal region. The Yamuna River rises at Yamunotri and is joined by important tributaries such as the Giri and more importantly, the Tons, which is its biggest tributary with 2.7 time greater volume of water than the Yamuna. The River Yamuna flows out of the hill areas through the Doon valley and the Shivaliks, into Haridwar district, being joined in the Doon valley by several streams.

51. The major rivers in Kumaon Region are Kosi, Ram Ganga, Saryu, Tons, Suyal, etc. Close to sub-project sites in this region are Kosi and Saryu. In Garhwal region close to sub-project sites are Bhagirathi, Ganga and Tehri Lake.

52. The sub project is not anticipated to impact any surface water body, since construction works are confined to the boundaries of the existing TRHs only and no impact is anticipated from the execution of yoga centres.

53. There shall not be any impact of the subproject, in any of the sites during construction or execution on any water body, since works are confined within the boundaries of the resorts.

54. 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 project construction and operation phases also there is no plan to use ground water due to difficulties in exploration. Hence ground water quality characteristics for the sub-project sites and surroundings are of no significance.

Geology / Seismology

55. 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 conversance 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.

56. 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, magnamites, and the likes dipping north easterly with a scrap facing the Gangetic plain and intruded by gneissose granite, pegmatite. These rocks rest upon metamorphosed shale, phyllites, limestone, quartzite, etc. from where these are separated by thrust.

57. 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.

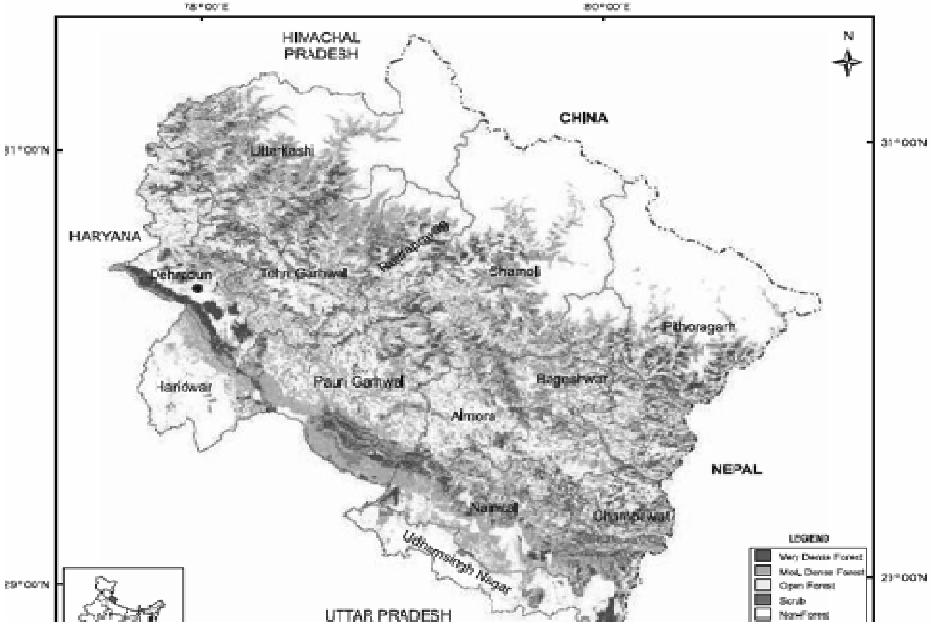
58. The seismic code in India divides the country into five seismic zones (I to V). Both the districts fall in zone IV. The sub-project sites in both districts come under seismic zone IV as defined by Urban Earthquake Vulnerability Project (UEVP) and the Atlas prepared by the Building Materials Promotion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

2. Ecological Resources

Forests

59. 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. 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 5.**

Figure 5: Forest cover Map of Uttarakhand



Source: India State of Forest Report, 2011

60. Out of 10 sub-project locations of Yoga Center and Panchkarma, only two locations namely Chilla and Mohaan are in reserved forest area. All other sites are outside forest areas. Works shall be carried out within the boundaries of existing TRHs only and hence clearance requirements are not triggered.

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. Two sub-project sites at Chilla Resort of GMVN and Mohaan Resort of KMVN is within the Rajaji National Park and Jim Corbett National Park respectively. But all project related facilities at both these locations are planned within the existing buildings of TRH resorts. The other locations are beyond 10 km distance from the notified protected areas.

63. The water bodies of state 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 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 National Park are UNESCO World Heritage Sites declared in 1988. The list of protected areas (National Parks and Wildlife Sanctuaries) in the State is given in **Table 11.**

Table 11: National Parks and Wildlife Sanctuaries in Uttarakhand

Sl. No.	National Park	Year of Establishment	Area (sq.km)	District
1	Corbett National Park	1936	521	Pauri Garhwal
2	Nanda Devi National Park	1982	630	Chamoli
3	Valley of Flower National Park	1982	87	Chamoli
4	Rajaji National Park	1983	820	Dehradun and Haridwar
5	Gangotri National Park	1989	2390	Uttarkashi
6	Govind National Park	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

3. Economic Resources

Industries

66. The State has very few industrial units mainly because of lack resources. In the hilly terrains, industries promoted include food processing, fruit processing, medicinal/herbal plants, and horticultural/floriculture-based industries. In the plain districts of Haridwar, Udham Singh Nagar, and other places, capital intensive and high-value addition industries are being encouraged by the government.

Infrastructural Facilities

67. The infrastructure facilities in terms of transport, health and education and electricity have been described below:

Education

68. In Uttarakhand there are 15,331 primary schools with 1,040,139 students and 22,118 working teachers (Year 2014).

Transportation

69. Transportation system is a key factor in the socio-economic development of any area. Roads are logically the critical inputs to the growth of all the sectors. Aside from road systems, the State of Uttarakhand is connected to other states via rail and air transportation systems. Dehradun, Haridwar and Kathgodam are the major railway stations connected to various parts of the country. Jolly Grant near Dehradun is the lone airport present in the State.

70. As per statitical diary of Uttarakhand 2013-2014, the overall road network in the State is 337486.92 km. The road network is administered predominantly by the PWD and comprises of 1375.76 km of national highways (NH) 3788.20 km of State Highways (SH), 3289.74 km of Major District Roads (MDR), 2,945.04 km of Other District Roads (ODR), 14543 km of Village Roads (VR), 858.85km light motor vehicle road (LVR). Other than PWD, Irrigation department (741 km), Cane development Department (885 km), Forest Department (3257 km) Border Road Task Force (BRTF) 1281.32 Km) and others like MANDI PARISHAD/Market council and PMGSY road (1685 km) a total 7849.32 km road is also managed by their respective department. The Border Roads Organization manages about 1,623 km of NHs, SHs, MDRs, and ODRs (class 9 equivalent and above roads having carriage way width 3.75 meter and above).

Land use

71. The salient land use features of Uttarakhand State are given in **Table-12.**

Table 12: Land use pattern of Uttarakhand

Sl. No.	Land use	Area (In hectare)
1	Total Reported Area	56,72,636
2	Forest Area	34,84,803
3	Culturable Waste Land	310,390
4	Fallow Land	1,27,793
	(i) Current Fallow	43,295
	(ii) Fallow Land Other than Current Fallow	84,498
6	Barren and Unculturable Land	2,24,764
7	Land Under Non Agriculture Uses	2,17,648
8	Permanent Pastures and Other Grazing Land	1,98,526
9	Land under Misc., Tree Crops and Groves not included in Net Area Sown	3,85,548
10	Net Area Sown	7,23,164

Source: Uttarakhand at a Glance 2012-13, Govt. of Directorate of Economics and Statistics

72. A study of the figure reveals that major portion of the state is under forest cover followed by land under crop 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.

73. Out of 10 sub-project sites, two sites of TRH are located in reserved forest area. But all project related facilities are planned within the built up area of TRH facilities.

74. **Agricultural Development:** Agriculture is the main economic activity in the State as per latest land-use statistics. The total reported area for agricultural activity is 56.72 lakh hectares. In the hills, the major crops grown include wheat, paddy, mandua, ramdana and potato whereas in the plains the major crops are wheat, paddy, pulses, and sugarcane. The pattern of land ownership is unlike that found in the rest of India. Most of the Uttarakhand farmers are owner-cultivators. Tenant farming and sharecropping are rare while landholdings are generally small and limited to family farms—approximately 50 percent of all landholdings are less than 0.5 hectares in size and 50 percent under one hectare. As such, the zamindari system of big landholders is limited to the plains. Both the geography and the Pahari cultural heritage have played roles in maintaining a traditionally more equitable, if impoverished, land distribution in Uttarakhand.

75. **Power source**. Uttarakhand has an estimated hydro power potential of approximately 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. Thirty-nine projects with a potential of 6,374 MW have been identified for PFR under PMs Hydro Initiatives. Although Uttarakhand is a power surplus State, a lot needs to be done to harness the untapped potential and sale the surplus power to make this a GDP driver sector for the State.

4. Social and Cultural Resources

Population and Communities

76. The State of Uttarakhand occupies a total land area of 53,483 sq. km. which is 1.73 percent of India's total land area. The native people of Uttarakhand are generally called either Garhwali or Kumaoni depending on their place of origin in either the Kumaon or Garhwal region. According to the 2011 census of India, Uttarakhand has a population of 10,116,752 comprising 5,154,178 males and 4,962,574 females, with 69.45% of the population living in rural areas. The state is the 20th most populous state of the country having 0.84% of the population on 1.69% of the land. The population density of the state is 189 people per square kilometer having a 2001–2011 decadal growth rate of 19.17%. The gender ratio is 963 females per 1000 males. The crude birth rate in the state is 18.6 with the total fertility rate being 2.3. The state has an infant mortality rate of 43, a maternal mortality rate of 188 and a crude death rate of 6.6.

77. The rural sector of mountainous region of Uttarakhand is poorly developed and the inhabitants are economically poor due to tough terrain, paucity of agricultural land, limited avenues of employment and number of other constrains. In this regard, the road improvement project is seen as a solution towards economic development.

Health facilities

78. The Infant Mortality Rate is 36 and Maternal Mortality Ratio is 359 (SRS 2007 - 2009) which are higher than the National average. The Sex Ratio in the State is 963 (as compared to 940 for the country).

Literacy

79. Literacy rate in Uttarakhand has seen upward trend and is 78.82 percent as per 2011 population census. Of that, male literacy stands at 87.40 percent while female literacy is at 67.06 percent. In 2001, literacy rate in Uttarakhand stood at 71.62 percent of which male and female were 81.02 percent and 63.36 percent literate respectively. In actual numbers, total literates in Uttarakhand stands at 6,880,953 of which males were 3,863,708 and females were 3,017,245.

80. The general enrollment and access to primary schools has seen a tremendous boost in the last decade. Such improvements are brought by the increased availability of functional primary schools and the initiation of the Education Guarantee Scheme in the State. Improved road conditions are deemed necessary to further develop the education services of the State.

Social and Cultural Heritage

81. The State of Uttarakhand has a great range of cultural practices. Festivals and cultural activities are being celebrated throughout the year in the State. The major fairs and festivals of the Garhwal region include the Hatkalika Fair, Tapkeshwar Fair, Surkhanda Devi Mela, Kunjapuri Fair, Lakhawar Village Fair, and Mata Murti Ka Mela. On the other hand, major fairs and festivals in the Kumaon region consist of Uttarayani Mela, Shravan Mela (Jageshwar), Kartik Poornima at Dwarahat, Kasar Devi fair, and Nanda Devi mela.

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

Archaeological Resources

83. There are no heritage sites notified by Archaeological Survey of India (ASI) within the TRH facilities selected for Yoga Centers and Traditional Medicine Panchkarma facilities 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 construction and operation activities.

IV. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

1. Environmental Impacts

84. 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 Traditional Medicine Panchkarma and Yoga Centers"** has been carried out for potential impacts during the following stages of the project planning and implementation.

85. **Location impacts**: Impacts associated with site finalization within the resorts/TRH buildings, including impacts on environment and resettlement or livelihood related impacts on communities;

(i) **Design impacts and Pre-Construction Impacts:** Impacts arising from project design, scale of operations, discharge standards, topographic survey, geotechnical survey, etc.;

(ii) **Construction impacts:** Impacts resulting from construction activities including site clearance, building refurbishment, earthworks, civil works, etc.; and

(iii) **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

86. The Yoga Centers and Panchkarma facilities are located within the existing buildings of Tourist Rest Houses/ Resort facilities of KMVN/GMVN at 08 locations. At 02 locations, Naukuchiyatal Resort and TRH Lansdowne the Yoga Center and Panchkarma facilities will be created in a new building to be constructed in vacant plots at the respective locations. Two sub-project sites at Chilla Resort of GMVN and Mohaan Resort of KMVN is within the Rajaji National Park and Jim Corbett National Park respectively. But all project related facilities at both these locations are planned within the existing buildings of TRH resorts. Since sub-project infrastructure is planned within the boundaries of existing TRH/ resorts, therefore, no requirement of any forest land or clearance under 'The 'Wild Life (Protection) Act, 1972' or 'The Forest (Conservation) Act, 1980' are needed. Hence no impacts related to location of Yoga Centers and Panchkarma Centers are foreseen.

87. 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 all ten sites of sub-project and away from any cultural / historical areas.

88. 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.

89. All Yoga Centers and Panchkarma facilities are planned within the boundaries of existing Resorts/TRH. Hence no land acquisition is required. The NOCs from the GMVN and KMVN administration have been obtained **(Annexure-5).**

90. Two sub-project sites are located within core zone (Chilla Resort) and buffer zone (Mohaan Resort) of Rajaji National Park and Jim Corbett National Park. As per EARF of the project any activity in the protected areas is permitted only after obtaining approval from

Chief Wild Warden. Accordingly request for NOC / approval has been made to the Directors of respective national parks **(Annexure-6).** The construction works at these both locations will be undertaken only after obtaining permission / NOC.

Impacts during Design and Pre-Construction Phase

91. 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, and waste disposal. This will result into inconvenience to the customers and tourists visiting the resorts. In general, there will only be impact on general housekeeping of resorts/TRH, if sanitation facilities are not planned properly.

92. 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. In the current sub-project, there is no land acquisition and no impact on private properties. There are no involuntary resettlement issues also in the sub-project. There is also no requirement for tree cutting at any of the ten sites.

93. There is no requirement for removal of shrubs also as the Yoga Centers and Panchkarma facilities are planned by alterations in the interiors of existing buildings/halls in the resorts/TRH facilities except at Naukuchiyatal and Lansdowne. At both these locations also there is no need to cut any shrubs or trees.

94. Since the civil works at the respective locations of resorts are very small in nature, so need for establishment of construction camps is not foreseen. These small civil works are likely to be executed by the local manpower available for a very small duration.

95. 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

96. All construction activities (for interior or exteriors of existing buildings in the resorts/TRH) to be undertaken at the respective sites will be approved by PIUs (Bhimtal in Kumaon region and Kotdwara in Garhwal Region). 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(s) and supervised by the DSC and PIUs. The Key impacts are covered in the following paragraphs.

Impacts due to stock piles of construction materials, and construction Waste: Improper stockpiling of construction materials can obstruct movement and cause inconvenience to the guest visiting tourists or in-house guests staying in resorts. 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. These construction waste materials will be disposed off on daily basis. The cut is not likely to be generated at any of the sub-project sites.

97. **Disposal of construction waste:** The construction waste could lead to untidy conditions at TRH/Resorts. 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 PIUs and DSC. The waste disposal will be on daily basis.

98. **Quarry/Borrow pits operations:** All the construction materials will be procured from market as construction works are of very small in nature. The construction activities do not require earthworks so operations of borrow areas is ruled out. 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.

99. **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 within the existing buildings and the duration of this exposure will also be relatively brief. The sub-project sites are within the existing TRH/Resorts operating, therefore, construction crew and guests staying will feel noise impacts of construction activities for a short period. The workers exposed will be suitably equipped with ear muffs. The area of construction of Yoga Centers and Panchkarma will be well shield to avoid noise propagation. The construction activities during night time will not be taken up at any of the sub-project sites.

100. **Impacts on biodiversity during construction phase:** No direct impacts are expected on the biodiversity during the construction phase as the sub-project sites are within the existing and operating Resorts/TRH. No tree cutting or even shrubs removal is required at any of the sub-project sites. There will be impacts on ecology if material storage is on open land within the Resort/TRH. No impact on Jim Corbett National Park and Rajaji National Parks are foreseen due to creation of Yoga Center and Panchkarma facilities at Mohaan Resort and Chilla Resorts. This is because works are planned within the existing buildings and boundaries. No activity is planned beyond the boundaries of the resorts. However, to meet EARF requirements, NOCs from Directors of respective national parks will be obtained before start of any construction works at Chilla and Mohaan resorts.

101. **Disturbance to traffic during construction phase:** The construction works at sub-project sites are so small that disturbance to traffic is not likely in the surroundings of Resorts/TRH. There may be minor inconveniences within the TRH for guest vehicles, but these will be temporary in nature and last for a very short duration.

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

103. 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. The construction crew will use existing sanitation facilities within the TRH/Resorts.

104. 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 and Suspended Particulate Matter (SPM) and gaseous emissions (NO_X, SO_2, CO, etc). However, transportation of construction materials will be very limited due to small scale construction activity. Therefore, impact at this stage will be temporary and restricted to the close vicinity of the building in which construction activity is in progress.

105. All vehicles and construction equipment operating for the contractor(s) 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 (at Rishikesh resorts site only), loading, unloading, vehicular movement and raw material transport, provisions shall be made in the construction period.

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

107. During construction phase, some noise will be generated from the various construction activities like equipment and vehicles engaged in transportation of construction materials. However, transportation of construction materials will be very limited due to the magnitude 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 within the building where work of Yoga Center and Panchkarma facilities is in progress. It will not be felt outside TRH/Resort boundaries. This noise will be intermittent in nature and will last only till construction phase. No impacts of noise on National Parks are anticipated due to creation of facilities at Mohaan and Chilla tourist resorts. 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.

108. The construction activity at all locations of sub-project sites will be confined to a very limited area and at 08 locations will be only interior refurbishment and slight alterations in existing layout.

109. Debris/solid waste will be generated due to excavated earth material and waste generated from inner demolition activities can be reused subject to the approval of the Engineer during the construction. Waste generated from the construction sites will be disposed off as per law to the satisfaction of the Engineer.

110. The clean-up and restoration operations are to be implemented by the contractor (s) prior to demobilization at all the ten sub-project sites. The contractor(s) will clear all temporary structures and dispose off all garbage from 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.

111. The Contractor(s) is likely to engage local labor for various construction activities. The Contractor(s) will provide potable drinking water and KMVN/GMVN will allow them to use existing sanitation facilities in the resort/TRH. The construction camps are not likely to establish at the sub-project sites. In view of magnitude of works, the construction crew will not exceed 5-10 per site. These construction work forces will be local. The Contractor(s) will ensure adequate dust bins at the location of Yoga Center and Panchkarma facilities construction site within the resort/TRH. These dust bins 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

112. 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. There will be increase in occupancy of resorts/TRH once Yoga

Centers and Panchkarma facilities start operating. The impacts on land acquisition and resettlement have been summarized in **Table-13**

Table 13: Sub-project Components and its Impacts on Land Acquisition & Resettlement

Sl. No.	Name of The Resort/Location	Proposed Physical Facilities	Permanent Impact on Land Acquisition and Resettlement	Temporary Impact
1	Chilla Resort	Reception-1 Panchkarma Room-3 Bathroom-3 Yoga Room-1 Store-1 Corridor-1	**NIL**(The facilities will be added within premises of existing Chilla Resort Boundary)	**NIL**(The facilities will be added within premises of existing Chilla Resort)
2	TRH Ganga	Reception-1 Panchkarma Room-3 Bathroom-3 Yoga Room-1 Store-1 Corridor-1	**NIL**(The facilities will be added within existing Ganga Resort building)	**NIL**(The facilities will be added within existing Ganga Resort building)
3	TRH Dhanaulti	Reception & Yoga Room-1 Panchkarma Room-1 Bathroom-1	**NIL**(The facilities will be added within premises of existing Dhanaulti TRH)	**NIL**(The facilities will be added within premises of existing Dhanaulti TRH)
4	TRH Sukhatal	Reception-1 Panchkarma Room-3 Bathroom-3 Store-1	**NIL**(The facilities will be added within existing building in TRH)	**NIL**(The facilities will be added within existing building in TRH)
5	TRH Naukuchiyatal	Reception-1 Panchkarma	**NIL**(The facilities will be added within vacant	**NIL**(The facilities will be added within vacant land in Naukuchiyatal

Sl. No.	Name of The Resort/Location	Proposed Physical Facilities	Permanent Impact on Land Acquisition and Resettlement	Temporary Impact
		Room-3 Bathroom-2 Bathroom-3 Yoga Room-1 Store-1	land in Naukuchiyatal TRH)	TRH)
6	Lansdowne TRH	Reception-1 Panchkarma Room-3 Bathroom-2 Bathroom-3 Yoga Room-1 Store-1	**NIL**(The facilities will be added within existing vacant land in the Lansdowne TRH)	**NIL**(The facilities will be added within vacant land in Lansdowne TRH)
7	Mohaan Resort	Panchkarma Room-1 Bathroom-1	**NIL**(The facilities will be added in first floor of existing building in Mohaan Resort)	**NIL**(The facilities will be added in first floor of existing building in Mohaan Resort)
8	TRH Kausani	Panchkarma Room-3 Bathroom-3	**NIL**(The facilities will be added within the existing building in Kausani TRH)	**NIL**(The facilities will be added within the existing building in Kausani TRH)
9	TRH Chiliyanaula	Panchkarma Room-3 Bathroom-3	**NIL**(The facilities will be added within the existing building of Chiliyanaula TRH)	**NIL**(The facilities will be added within the existing building of Chiliyanaula TRH)
10	TRH Chaokori	Panchkarma Room-1 and 2 Bathroom-1 and 2	**NIL**(The facilities will be added within the existing building of Chaokori TRH)	**NIL**(The facilities will be added within the existing building of Chaokori TRH)

Source: Social due Diligence Report

113. It is clear from above **Table-14** that sub-project will not result in any permanent or temporary land acquisition and resettlement impacts because all construction will be within the government owned land and premises of existing resorts/TRHs.

Impacts during Operation Phase

114. Impacts on environmental conditions associated with the operation stage of the sub-project components pertain only to impacts due to enhanced tourist activities but since the capacity of resorts is limited, tourist flow cannot increase beyond that level. The TRHs/Resort occupancy and tourist arrival data is given in **Table- 14** and accommodation capacity of TRHs/Resorts has been given in **Table-15** Kumaon region. Similar data has been given for Garhwal Region Resorts /TRHs in **Table 16 and Table-17** below.

Table-14: Occupancy and Tourist Arrival Data for KMVN Resorts/TRHs

		OCCUPANCY					Tourist Arrival				
Sl.No.	Name of Unit	2012-13	2013-14	2014-15	2015-16	2016-17 (January)	2012-13	2013-14	2014-15	2015-16	2016-17 (January)
1	**Mohaan**	21.89 %	18.96 %	15.60 %	20.33 %	17.03 %	1848	1795	1274	1844	1275
2	**Chiliyanaula**	18.58 %	15.03 %	20.39 %	16.91 %	19.38 %	3384	2511	2909	2939	2860
3	**Kausani**	24.82 %	23.29 %	31.62 %	32.25 %	34.99 %	7009	5655	8004	7662	7289
4	**Chaukori**	30.1 %	23.24 %	27.86 %	33.56 %	36.76 %	5211	4544	5375	7231	5519
5	**Naukuchiyatal**	27.17 %	24.67 %	27.53 %	38.33 %	37.47 %	2741	2425	2778	2912	2254
6	**Sukhatal**	32.39 %	28.01 %	35.63 %	44.37 %	44.64 %	8635	6933	8857	7880	6704

Source: KMVN Office, Dehradun

Table-15: Accommodation Capacity in Resorts/TRHs in Kumaon Region

Sl. No	Name of Unit	Royal Premium	Standard	4-B Supper Deluxe	4-B Deluxe	Cottage 4-B Supper Deluxe	4-Bed Royal	2-Bed Royal	2-Bed Executive	2-Bed super deluxe	2-Bed Deluxe	Cottage 2-Bed super Deluxe	Cottage 2-Bed Deluxe	Dorm Bed No.	Total Room	Total Bed
1	**Mohaan**					01						02	08		**11**	24
2	**Chiliyanaula**				06				04	06	06			08	**22**	64
3	**Kausani**			04						06	06	10	02		**28**	64
4	**Chaukori**			01		01			06	07	07		06	06	**28**	66
5	**Naukuchiyatal**			01						06	06			12	**13**	40
6	**Sukhatal**	07	06				07	16		07			02	24	**45**	128

Source: KMVN Office, Dehradun

Table- 16: Occupancy and Tourist Arrival Data for GMVN Resorts/TRHs

			OCCUPANCY					Tourist Arrival				
Sl.No.	**Name of Unit**	**Bed**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**	**2011-12**	**2012-13**	**2013-14**	**2014-15**	**2015-16**
1	**Chilla**	40	36.69%	38.02%	30.27%	30.38%	31%	5357	5551	4419	4435	4526
2	**Dhanaulti Resort**	32	29.18%	32%	22.43%	28.75%	34%	3408	3738	2620	3358	3971
3	**Lansdowne Tip N Top**	22	30.35%	35.43%	38.84%	73.69% %	44%	2437	2845	3119	5917	3533
4	**Rishikesh Ganga Resort**	64	36.07%	29.20%	23.18%	27.92%	30%	8426	6821	5415	6522	7008

Source: GMVN Office, Dehradun

Table-17: Accommodation Capacity in Resorts/TRHs in Garhwal Region

Sl. No.	**Name of Unit**	**Air Conditioned**	**Super Deluxe**	**Deluxe**	**Economy**	**Family Suite**	**Dormitory Bed**	**Wooden Hut 2 Bed**	**Deluxe Hut**
1	**Chilla**	04	04			03	18		
2	**Dhanaulti Resort**		03	09+3 new	04				
3	**Lansdowne Tip N Top**		04			03			06
4	**Rishikesh Ganga Resort**	14		14			18		

Source: GMVN Office, Dehradun

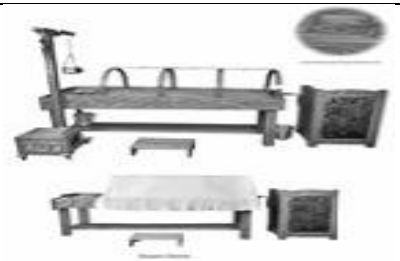
115. If occupancy data is analyzed, it is inferred that maximum increase in number of vehicles will not exceed more than 15 passenger cars to reach at full occupancy level from the current occupancy level of 17.0 - 73.69 %. This increase in traffic will be during peak tourists season (April- October). This increase in occupancy will result into increased air pollution on account of vehicular traffic emissions and stress on water supply and sanitation facilities in the resorts/TRHs. Since water supply and sanitation facilities at each resort have been planned considering full occupancy levels, possibility of stress on local water supply and water availability in the resort/TRH is ruled out. The increase of vehicular traffic to the extent of 15 passenger cars will not cause any congestion and any significant increase in existing air quality levels as all resorts/TRHs of KMVN and GMVN are on well connected and wide roads. Some of these are located even on National Highways (Dhanolti) and State Highways (Chaukori and Sukhatal). Inside the respective resorts/TRHs parking facilities are available corresponding to full occupancy and no new parking requirement is anticipated.

116. During operation phase of Traditional Medicine Panchkarma facilities there will be usage of herbal/Ayurvedic Products and massage oils (vegetable oils). The quantum of waste oil and solid waste generation has been assessed and the equipment wise pollution generation and disposal methodology adopted has been given in **Table-18**:

Table 18: Panchkarma Instrument / Equipment Specific Pollution Generation and Disposal Methodology

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
1	**STEAM CABINET with STEAM GENERATOR** A well designed sturdily built cabinet made out of hard-wood and water proof ply, to be equipped with an adjustable wooden seat & foot rest. The cabinet will have laminated finish from outside & spray painted f om inside. A stainless steel tray will be provided to store condensed water, of width 28"x depth 37"x height 47". SPECIAL FEATURES : Cabinet will be of Hardwood and water proof ply, to be painted from inside and laminated from outside. Steam-Generator will be of Heavy Aluminum body, with Safety valve, Steam control valves & Pressure Gauge. Power: 2kw, Heater. 220V AC. The Steam Generator to be fitted with Temperature Controller cum Indicator and Timer (60 minutes).		1- Only steam generated and on usage of this equipment, this steam gets condensed and converts to water vapours. These condnsed water vapours are pollution free and discharged to septic tank or viped with clothes 2- No Air pollution Generation and no soild waste generation.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
2	**Massage cum Shirodhara Table:** The table will be seasoned Hardwood with natural wood polish finish, will have a slanted & curve Hard-wood top for full body oil massage and Shirodhara. Table will have a shelf for storage of accessories e.g. Oil bottles and Towel etc. Head end to be fitted with a stainless steel sink and an overhead chrome plated bar, with Stainless steel oil pot, for Shirodhara. Size: 225cm x 80cm x 80cm high.		1- Waste oil generation is minimum in massage operations. The waste oil is collected in steel sink through a connected pipe with the table. 2- During Shirodhara operations, there will be generation of oil to the extent of maximum 5 liters due to Shirodhara therapy to about 8 patients in day operation. This oil is collected in steel sink under the table. This collected waste oil given to the supplier for recovery or other reuse. 3- The solid waste generated due usage of tissue papers and cotton rags is collected in dust bin. This waste is disposed off with other municipal solid waste .
3	**Traditional Massage cum Shirodhara Table (Wooden):** The table will be a seasoned Hardwood with natural wood polish finish; will have a slanted & curved hard-wood top for full body oil massage and Shirodhara. Head end has a specially designed wooden pot for oil collection. To be used for Abhyanga, Shirodhara & Nasya etc. Dharapathy made of wooden board with wooden rim all around, in sleek and elegant design. Size: 290cm x 80cm x 15cm high (Total height: 80cm)		1- Waste oil generation is minimum in massage operations. The waste oil is collected in steel sink through a connected pipe with the table. 2- During Shirodhara operations, there will be generation of oil to the extent of maximum 5 liters due to Shirodhara therapy to about 8 patients in day operation. This oil is collected in steel sink under the table. This collected waste oil given to the supplier for recovery or other reuse. 3- The solid waste generateddue usage of tissue papers and cotton rags is collected in dust bin. This waste is

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
	Finish: Natural wood polish		disposed off with the municipal solid waste .
4	**Royal Panchkarma Work Station** Sturdily built, sleek & elegant Abhyanga table top to be made of mill jointed wooden board with Hardwood borders. The table will be slanting towards Head-end and Foot-end for collection of oil. Table will be used for Abhyanga, Shirodhara, Nasya, and Vashpa & Nadi Swedan etc Table size. : 200cm x 80cm x 80cm high. Table top to be made of jointed wooden board with hand carved side borders & Legs Shirodhara Stand. : Carved seasoned solid Wood stand with storage box, mounted on wheels including a Copper pot, brass chains, hooks to hang. Pot (with hammer marks) with a bright natural finish Swedan Yantra. : Heavy Aluminum body fitted with electric heater, pressure gauge, safety pressure valve & steam flow control valves. Mounted on wheels Steam Dome. : made of seasoned Teak-wood Dome in Two parts for steam-bath. Overall Size: Approx.150cm x 70cm x 45cm. Accessories. : One: Copper Pot, Four: White off white cotton sheet covers for Steam Dome, Foot stool & Wooden partition for Steamer, Finish. : Natural wood polish finish. Power. : 220V AC.		1- The waste oil generated from operations of Panchkarma is collected in steel sinks on eitherside of the table. The maximum oil generation for a day's operation is about 4 liters per day. This collected oil is sent back to the suppliers for recovery and reuse . The waste oil is not discharged to the septic tanks. 2- Solid waste generated in the form of cotton rags, tissue papers and herbal products is collected in bins and disposed off along with municipal waste. All herbal products in use are natural substances and have no issue in disposal. The total waste generated in a day's operation does not exceed 250 grams. 3- The table is washed with water after wiping oil from the surface through cotton rags. The wash water collected in sinks (about 2 litres is discharged to septic tanks.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
	3kw.		
5	**NADI SWEDAN YANTRA (Electrical)** Suitable for giving steam bath at particular area. The heavy body steam generator to be fitted with an electric heater, pressure gauge, safety pressure valve & steam flow control valve. Steam flows from a hand-held nozzle to give proper steam-bath at a point. Mounted on Four wheels for easy mobility		1- No solid waste or air pollution generation from this equipment. Only steam generated. This steam once condensed after steam wash is unpolluted water and this is discharged to septic tank. This instrument is operated by electricity.
6	**NADI Sweden YANTRA (Semi- Auto. Electrical)** The heavy body steam generator to be fitted with minimum water level Cut Off and Temperature controller. The unit is suitable for giving steam at a particular area with a specifically designed hand held nozzle. Yantra is fitted with 3Kw electric heater, pressure gauge, safety pressure valve and a steam flow control valve. Mounted on Four wheels for easy mobility.		1- No solid waste or air / water pollution generation from this equipment. Only steam generated. This steam once condensed after steam wash is unpolluted water and this is discharged to septic tank. This instrument is operated by elecricity.
7	**STAND for SHIRODHARA (Metal with SS Pot)** Painted metal stand with chrome plated over-head bar mounted on a wide tubular base, fitted with two wheels for mobility, with Stainless steel oil pot of 2 lit. Capacity, brass chains & hooks to hang for Shirodhara treatments.		1-This shirodhara instrument stores oil for Shirodhara treatment. There is no waste generation and discharge from the operation of this instrument.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
8	**Model: AMP-032284** **STAND for SHIRODHARA (Wooden, with Copper Pot)** Heavy duty, carved seasoned solid Wood stand with wide wooden base mounted on four wheels with a Copper pot, brass chains & hook to hang for Shirodhara oil treatments Pot with Oil capacity of 2 lit. to be fitted with oil flow control valve mechanism. Pot with hammer marks with a bright natural finish.		1-This shirodhara instrument stores oil for Shirodhara treatment. There is no waste generation and discharge from the operation of this instrument.
9	**SHIRODHARA YANTRA (Electrical) (Automatic with oil flow & temperature Controller)** Shirodhara Yantra to be fitted with stainless steel sink (for Oil Collection), Filtration and Digital Temperature indicator cum controller (for Temperature Control of oil). including electrical Flow Control system for controlling of Oil Drops / Dhara, with electrical Timer. The will be housed within a metal cabinet with chrome plated push handle, mounted on four wheels with Powder coated exterior finish.		1-This instrument is operated with electricity. There is no oil spillage from operations of this Shirodhara Yantra as there is sink for oil collection. 2- No solid waste geneated except for cleaning by cotton rags. These rags are disposed off with municipal waste. Table is cleaned after wiping the oil from surface through cotton. 3- No air pollution generation.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
10	**Shirodhara Stand (Wooden, with Head Support)** A complete manual Shirodhara Yantra will consist of Carved wooden stand, Brass pot, wooden Head Support, Oil collecting bucket and mug for Shirodhara oil treatments. Stand. : Stand carved from seasoned wood with wheels. Pot/Yantra. : Copper, 2 lit. Capacity, fitted with oil flow control valve. Head Support. : Specifically designed adjustable Wooden Head support, with oil collection and draining system. Oil Collection. Stainless steel bucket placed under the head support for collection of oil. Accessories. : Stainless steel. Mug for transfer of oil from Bucket to Pot Finish. : Wooden Stand to have natural polish finish And Pot with hammer marks with a bright natural finish.		1- In this instrument oil is collected in bucket after Shirodhara treatment. No oil is discharged to floor or septic tanks. 2- No solid waste generation. 3- No air pollution generation.
11	**SHIRODHARA POT (Brass)** A shallow Brass pot with brass chains and 'S' hook to enable hanging from a hook/stand for Shirodhara oil treatments. Pot with Oil capacity of 2lit. To be fitted with oil flow control valve mechanism. Pot with hammer marks will have a bright natural finish		1- No oil or waste discharge from this instrument as this is used for fresh oil storage only. No solid waste or air pollution generation.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
12	**SHIRODHARA POT (Copper)** A shallow Copper pot with brass chains and 'S' hook to enable hanging from a hook/stand for Shirodhara oil treatments. Pot with Oil capacity of 2lit. Will be fitted with oil flow control valve mechanism. Pot with hammer marks will have a bright natural finish		1- No oil or waste discharge from this instrument as this is used for fresh oil storage only. No solid waste or air pollution generation.
13	**SHIRODHARA POT/YANTRA (Stainless Steel)** A shallow stainless steel pot with brass chains and 'S' hooks to enable hanging from a hook / stand for Shirodhara oil treatments. Pot with Oil capacity of 2lit. Will be fitted with oil flow control valve mechanism. Pot with Brass base will have a bright natural finish		1- No oil or waste discharge from this instrument as this is used for fresh oil storage only. No solid waste or air pollution generation.
14	**Shiro Vasti Cap (80cm X 20cm)** The item/s, as detailed above will conform to the standard specification existing in the sector and one number of each of these items will need to be supplied to the “Employer” for prior approval.		1- This instrument does not use oil or any other herbal item. So no generation of any kind of pollution.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
15	**Model: AMP-032316** **Vasti Yanthram with two Vasti Tips (Metal)** The item/s, as detailed above will conform to the standard specification existing in the sector and one number of each of these items will need to be supplied to the "Employer" for prior approval.		1- This instrument does not use oil or any other herbal item. So no generation of any kind of pollution
16	**Panchkarma Accessories Set (Set of 16 pcs)** Will be made of Bronze, hand cast in traditional shapes and designs. Bowl with Handle Oil Bowl Mortar & Pestle Thannikinnam Nasya Yanthram (Bronze) Polished Uruli 3" dia (Rasnadi Choornam) Polished Warp 5" dia (Kalabha Kinnam) Polished Warp - 9"dia Lotta Nilavilakku - 12" size Kindi with Handle – 500 ml Incense Holder Thavi Unpolished Uruli 12" Vasti Yanthram (Bronze) Vasti Kit (with 50nos. Disposable tips & Bags)"		1- These are accessories which do not generate any pollution. The cleaning is done with cotton cloths and subsequently with water after usage. No oily waste or any solid waste geneartion due to usage of these accessories.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
17	**Panchkarma Accessories (Set of 4pcs)** Janu Vasti, Greva Vasti, Kati Vast, Netra Vasti The item/s, as detailed above will conform to the standard specification existing in the sector and one number of each of these items will need to be supplied to the "Employer" for prior approval.		1- These are accessories which do not generate any pollution. The cleaning is done with cotton cloths and subsequently with water after usage. No oily waste or any solid waste geneartion due to usage of these accessories.
18	**MASSAGE TABLE with SHIRODHARA YANTRA (Electrical)** Table will be made of Polished seasoned Teak-wood - 2 meter long and 75cm wide, with a little slant towards foot end, fitted with stainless steel sink for Oil Collection, with Filtration and Thermostatic Heat Co trol arrangements and electrical control system of Flow of Oil Drops and Movement of oil pipe fitted with electrical Timer		1- There is no geneartion of oil due to massage as most of it absorbed by the body. Any excess oil is collected in the sink under the table. 2- The table after completion of massage operation is cleaned with cotton clothes and subsequently washed with water. 3- The solid waste genearted in terms of clothes, tissue papers, etc. is disposed off with the municipal waste.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
19	**SARVANG DHARA SNEHAN YANTRA (Electrical) of Pizhichil or equivalent make** Dhara Patti. (Table): Wooden table top with Stainless steel sink made of One piece wooden boar h a v i n g 5cm high rim all around the top and mounted on carved hard-wood legs. Dhara System. 3. Sarvang dhara frame made of stainless steel tube with holes for oil flow on the body. 4. Shirodhara system made of Stainless Steel. tube of adjustable height with a system to enable Swin s/spray oil horizontally on the forehead automatically. Snehan Yantra. Fitted with, Two motors for pump, Oil filtration and oil Collecting chamber with Digital temperature controller.		1- In the usage of this Sarvangdhara Yantra, oil is collected back in the oil chamber. The used oil is sent back to the supplier for recovery and reuse. 2- No waste water genearted except due to cleaning of table. This waste water is discharged to the septic tank. The table is washed with water after wiping oil with cotton clothes. 3- No air pollution or solid waste generation.
20	**SARVANG VASHPA SWEDAN YANTRA (with Trolley)** Steam is generated electrically & passes through rubber / copper pipes in the box from both sides and can be controlled by gate valves. Made of seasoned Hardwood and water proof ply, with Acrylic window on both sides. Steam-Generator. : Heavy Aluminum body, with Safety valve, with Steam control valve & Pressure Gauge.		1- This instrument uses only steam. On usage steam gets condensed to water and discharged to septic tank. No pollution related to air, water and solid waste.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
	Timer. : 60 minutes, Power. : 3kw, Heater. 220V AC., Temperature Controller cum Indicator. Size. : 75" long x 40" wide x 45" high. Finish. : Inside painted and outside polished		
21	**SARVANG VASHPA SWEDAN YANTRA (Box Type)** Made of seasoned Hardwood and water proof ply. Steam-Generator. : Heavy Aluminum body, with Safety valve, with Steam control valve & Pressure Gauge. Timer. : 60 minutes, Power. : 3kw, Heater. 220V AC, with Temperature Controller cum Indicator. Size. : 84" long x 32" wide x 38" high. Finish. : Inside painted and outside is polished natural.		1- In this instrument also steam is used during operations. On usage steam gets condensed to water and discharged to septic tank. No pollution related to air, water and solid waste.
22	**AARSH VASHPA SWEDAN YANTRA (with Steamer)** Comfortable chair, constructed of tubular pipe and finished in oven baked enamel is fitted with solid wood seat having electrically Steam Generating unit for fomentation, with foam padded back with side arm supports. Power 500watts. 220V AC.		1- This equipment utilises steam for its functioning. This steam on usage gets condensed to water. Excess water after usage is discharged to septic tanks.

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
23	**VAMAN PEETH (Chair + Table)** Vaman Peeth set comprises of a tubular steel Vaman Table and a Chair with reclining back. Vaman table will be fitted with One stainless steel bucket, 2 Glass holders & two utility bars. One 5 litters measuring Jar will be provided for Vaman kriya. Table will be fitted with four wheels for mobility with reclining back; seat will be fitted with solid wooden rungs for comfort, with powder coated finish.		1- In this set up , no oil is used. The waste generated due to Vaman Kriya (vomitting) is stored in bucket. This waste is basically water and food waste from stomach. This is biodegradable waste and discharged to septic tank from the bucket.
24	**NASYA PEETH/ Chair** Tubular steel chair with wooden rungs seat and back, with adjustable head support. Frame. Constructed of square tube and finished oven baked enamel. Seat & Back. : Well polished seasoned Teak-wood rungs, adjustable reclining back and fitted with adjustable Head support		1- In this equipment usage, there is no use of any oil or water. There is no generation of any water pollution, air pollution or solid waste.
25	**Veerachan Chair** Comfortable commode chair, constructed of square Pipe and finished in oven baked enamel, fitted with hard wood seat with stainless steel commode and back with adjustable recline, with teak wood rungs, and side-arm supports, mounted on 10cm heavy duty castors		1- This Veerachana chair fitted with commode is used for purgation of body toxins through anal route. The waste is accumalted in the attached commode and once sitting is completed, the waste from commode is discharged to septic tank through the toilet sheet. There is no other pollution generation. Medicines given to the patient are ayurvedic and mainly herbals in nature

Sl. No.	Description	Image	Pollution Generation and Disposal Principle
26	**VIDYUT (I.R) BATH CABINET(Taap Swedan, 1200W)** Infra-Red bath cabinet, fitted with Eight I.R Lamps and intensity control regulators, Cabinet, with Digital temperature controller made of seasoned good quality hardwood & ply-board, with adjustable seat height. Natural Wood polish finish from outside & enamel painted inside		1- In this Vidyut bath cabinet temperature regulated water is used for full body fomentation. No oil used. Water after fomentation is discharged to septic tank through bath room. No generation of any pollution.
27	**SAUNA CABIN DELUXE / TAAP SWEDEN YANTRA** Prefabricated royal wooden cabin, suitable for Two persons of size 180cm wide x 150cm deep x 190cm high, thermally insulated ceiling and wall sections made of hard wood. Sauna cabin is supplied with 6 Kw Stove and stove guar, Control Panel, Internal light, Sauna Rocks, Two layers Bench, Digital temperature controller, Stain-less steel Bucket & wooden ladle. (Three Phase 440V.AC power supply)		1-In the sauna cabin steam is used as media for sauna bath. The steam on condensation gets convetred to water and this water is not contaminated with pollutants and discharged to septic tanks.

117. It is clear from the above table that there is only generation of waste oil due to operations of Panchkarma from Royal Panchkarma work station, Massage cum Shirodhara Table, Massage Table with Shirodhara Yantra and Sarvangdhara Snehan Yantra. Maximum 8 persons can utilize these equipments and services in a single day operation. The waste oil generated does not exceed 2-3 liters per day from full day operation at Panchkarma work station. Another 2-3 liters per day will be generated from Massage table with Shirodhara Yantra and Sarvang Snehan Yantra. Hence maximum waste oil generation will not exceed 6 liters per day. As explained above, this waste oil is collected in the connected sinks with the above equipment. This collected waste oil is sent back to the supplier for recovery and possible reuse for other purposes. The other waste generation is through Veerachan Chair and this waste is semi solid waste due to purgation of body through anal route. The waste quantity in a day from one day operation will not exceed 3-4 liters. This waste is collected in commode and discharged to septic tank through toilet sheet flushing. This is biodegradable waste and can be discharged to septic tanks. The waste generated from Vaman Kriya from the Vaman Peeth equipment is about 5-8 liters day. This waste water is stored in stainless steel bucket and discharged to the septic tank. This waste can be discharged to septic tank and this does not affect the performance of septic tank. None of other equipment listed in the table generates contaminated waste. The main generation of water is on account of steam condensation from Sauna Cabin, Vidyut Bath Cabinet, and Sarvang Vashpa Swedan yantra. The steam condensed water in day's operation will not exceed 3-5 liters per day from all the steam generating equipment. This water is not polluted and can be safely discharged to the septic tanks along with floor washings.

118. All the equipment handling oil are wiped with cotton/cotton rags before washing with water. This ensures no discharge of any oily waste to the septic tanks. The solid waste generation is in terms of cotton rags, paper tissues and waste herbal products. These are collected in dust bins and will be disposed off along with other wastes of Resort/TRHs. The solid waste generation at the respective TRHs/Resorts will not exceed 2 kg per day at full capacity operations. No solid waste will be generated on account of Yoga Center operations. The solid waste generated at each site of sub-project during operation phase will be segregated. The waste generated will be disposed off with the Resort/TRH waste. The dustbins in adequate numbers will be provided at each site of sub-project.

119. Ecological impacts on account of operations of Yoga Centers and Panchkarma facilities are not anticipated during operation phase. The operations will mainly be confined within the close buildings and any waste water generated will be diverted to existing septic tanks constructed in the respective TRHs/Resorts. None of the sub-project site is located close to river except Mohaan Resort. Mohaan Resort is located close to Kosi River. At this site also impacts on river ecology are ruled out because septic tanks have been constructed at resort for waste water collection and disposal. The waste water generated during operation phase of sub-project activities as elaborated in above paragraphs will also be taken care by these septic tanks.

120. No impact is anticipated on the ground water quality during the operation phase as there will be proper disposal of waste water from Panchkarma facilities. No waste water will be generated on account of Yoga Centers operations activities. The existing toilet blocks in the TRHs/Resorts will take care of any waste water generated. The existing toilet blocks have properly constructed septic tanks followed by soak pits.

121. 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.

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

123. **Safety Measures:** There will be display of 'Do and Don'ts' at all locations of Yoga Centers and Panchkarma facilities. The other safety features are explained below:

- Safety features will be included through proper lighting, safe and wide access path to the sites of Yoga Centers in TRH/Resorts.

- 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.

- All the 10 sub-project sites will be equipped with necessary first aid facilities.

124. **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. There will be increase in the occupancy of Resorts and TRHs and will improve revenue generation of KMVN and GMVN.

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

(i) Yoga Centers and Traditional Medicine Panchkarma facilities an additional attraction to the guests and potential tourists;
(ii) Improvement in the quality of life of the host community;
(iii) High quality of relaxation and tourism experience to the tourists;
(iv) Building environmental and cultural awareness about site and its respect;
(v) Positive experiences for both visitors and hosts; and
(vi) Financial benefits for local people.

Description of Planned Mitigation Measures

126. Screening of environmental impacts is based on the magnitude and duration of the impacts. **Table 19** provides the potential environmental impacts and the mitigation measures including the responsibilities for implementing the same.

Table 19: 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	Permanent	Major	The design of all components of the **sub-projects** have been done considering earthquake coefficient of zone IV	PIU / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
	other natural disasters			and considerations are also there for sustainability of infrastructure during natural disasters. The facilities have been planned in the existing buildings which have withstood all past earthquake.	
1.2	Finalization of locations of project sites	Permanent	Major	All the locations of sub-project have been planned within the existing and operating Resorts/TRHs of KMVN and GMVN. All sites except Mohaan and Chilla Resorts are outside National Parks. The two resorts located within National Parks are functioning with the permission of authorities and planned activities of sub-project are consistent with the Forest /National Park Conservation Plan. The sub-project related activities will not have any adverse impacts on these National Parks.	
2	**Design Impacts and Pre-construction Impacts**				
2.1	Layout of components to avoid impacts on the aesthetics of the sub-project sites	Permanent	Major	The project components will not have any impacts on local aesthetics. The facilities related to Yoga Centers and Panchkarma are planned in the existing buildings of	PIU / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				Resorts/TRHs. Hence no mitigation measures are warranted.	
2.2	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	Minor	The creation of Yoga Centers and Panchkarma facilities will not alter the drainage of sites as these are planned within the existing building. No additional parking lots or landscaping planned as part of sub-project. At Resort and TRH Lansdowne, facilities are planned in a new building to be constructed in vacant land in adjacent locations. In the remaining resorts, the existing drainage facilities of resorts will take care of storm water of additional paved surface created due to building at this resort.	PIU/DSC
3	**Construction Impacts**				
3.1	Construction Camps - Location, Selection, Design and Layout	Temporary	Minor	Since civil works for construction are small in nature, need for construction camps establishment is not felt. Another reason for not establishing construction camp is that it will have conflict with the Resort/TRH operations. The Contractor(s) will arrange residing	Contractor(s) / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				facilities in the residential areas close to Resorts/TRHs if need is felt.	
3.2	Site clearance activities, including delineation of construction areas	Temporary	Moderate	The commencement of site clearance activities, wherever required, will be undertaken with due permission from the Environment Specialist of the DSC to minimize 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 within the vacant land within TRH/Resorts.	Contractor(s) / DSC
3.3	Drinking water availability for construction crew	Temporary	Major	Sufficient supply of potable water to be provided and maintained for construction workers. This water will be arranged from existing potable water supply of TRH/Resort.	Contractor(s) / DSC
3.4	Waste disposal	Permanent	Moderate	Location of disposal sites for construction waste at sub-project sites will be finalized by the Environmental Specialist of the DSC	Contractor(s) / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				and he will confirm that: disposal of the material does not impact the water body (Ganga River at Rishikesh and Kosi at Mohaan) or environmentally sensitive areas and that no endangered / rare flora is impacted by such materials. Special attention will be paid to waste disposal at Chilla and Mohaan resort sites as these are located close to canal and Kosi River and also in National Parks. No waste will be disposed off in Ganga River at TRH Ganga Resort Rishikesh site also.	
3.5	Stockpiling of construction materials	Temporary	Moderate	Stockpiling of construction materials does not impact or obstructs the drainage and stockpiles will be covered to protect from dust and erosion. The stockpiles will not be in flood plains of Ganga River at Rishikesh and Kosi River Mohaan Resort. All stockpiles will be within Resort/TRH boundary.	Contractor(s) / DSC
3.6	Soil and Water Pollution due to fuel and lubricants,	Temporary	Moderate	No fuel storage or vehicle cleaning will be carried out at	Contractor(s) / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
	construction wastes			resort sites to avoid soil and water pollution. Water pollution parameters will be monitored as per monitoring plan.	
3.7	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 Ganga at Rishikesh, Kosi at Mohaan and canal at Chilla) near the sub-project sites. Extraneous construction wastes will be transported to the pre-identified disposal sites for safe disposal.	Contractor(s) / DSC
3.8	Generation of dust	Temporary	Moderate	The Contractor(s) 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(s) / DSC
3.9	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(s) / DSC
3.10	Noise Pollution	Temporary	Moderate	Noise limits for construction	Contractor(s) / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				equipment used in this project will not exceed 75 dB (A).	
3.11	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 clothing.	Contractor(s) / DSC
3.12	Disposal of Construction Waste / Demolition Debris	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 sub-project sites especially in forest and National Parks areas at Chilla and Mohaan sites.	Contractor(s) / DSC
3.13	Safety Measures During Construction	Temporary	Moderate	Adequate safety measures for workers during handling of materials at site will be taken up. The Contractor(s) has to comply with all	Contractor(s) / DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				regulations for the safety of workers. Precaution will be taken to prevent danger of the workers from fire, accidental injury etc. First aid treatment will be made available for all injuries likely to be sustained during the course of work. The Contractor(s) will conform to all anti-malaria instructions given to him by the Engineer.	
3.14	Clearing of Construction sites	Temporary	Major	Contractor(s) 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	Contractor(s) / DSC
3.15	Construction at Chilla and Mohaan Resorts (sites in National Parks)	Temporary	Major	Although construction materials quantities are very minor yet the Contractor(s) will submit his work plan & schedule for the	Contractor/DSC

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				construction activities at Chilla and Mohaan sites including routes for transportation of construction materials in consultations with Forest and National Park officials. The conditions laid down in the NOCs should be adhered to.	
4	**Operation and Maintenance impacts**				
4.1	Ecological Impacts on National Parks at Chilla and Mohaan Resorts	Permanent	Moderate	The Resort managements at respective locations will prepare ' Do and Dons' check list and display for the necessary precautions to be taken at resorts while staying.	Tourism Department
4.2	Waste oil generation on account of Panchkarma facilities and its safe disposal	Permanent	Moderate	It will be ensured that waste oil from all equipment is collected and stored in jerry cans. This oil should be sent back to the suppliers for recycle or reuse.	Tourism Department and Management of respective Resorts/TRHs
4.3	Safety risks	Temporary	Major	Proper demarcation & flagging of the area towards valley side to minimize risks at Lansdowne, Choukori and Kausani sites as these sites are on hill tops.	Tourism department
4.4	Unhygienic	Temporary	Severe	Tourism department	Tourism

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
	conditions due to poor maintenance of sanitation facilities and irregular solid waste collection			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 outside resorts/TRHs	department

V. ENVIRONMENT MANAGEMENT PLAN (EMP)

1. Institutional Arrangements

127. The Government of Uttarakhand through Department of Tourism (DOT) is the Executing Agency. The Executing Agency (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.

128. 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.

129. 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.

130. DoT has established a PMU, headed by a full-time Program Director (PROGRAM DIRECTOR), 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.

131. 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.

132. 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.

133. The Design and Supervision Consultant (DSC) has been engaged to provide all necessary support to and coordination with the Executing Agency, 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.

134. The Environmental Management Plan (EMP) translates recommended mitigation and monitoring measures into specific actions that will be carried out by the Contractor(s) 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-20**, **Table-21** and **Table-22** present EMP for pre-construction, construction and operation phases of sub-project.

Table 20: 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. The managements of KMVN and GMVN will take care of the assets created at the TRHs and Resorts under the sub-projects.	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	The sub-project components (Yoga Centers and Traditional Medicine Panchkarma facilities) will avoid impacts on the aesthetics of the surroundings as these are planned in already existing and operating resorts. New structure is to be created at Naukuchiyatal and Lansdowne in the vacant land within the boundaries of Resorts/TRH. At these locations Yoga Center exteriors will be matched with the existing TRH exteriors	Aesthetics of structures planned	PIU / DSC	PMU	During finalization of design and during implementation	DSC/PMC professional fee

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	At all locations except Naukuchiyatal and Lansdowne, facilities are to be created in the existing buildings of Resorts/TRHs, so additional runoff will not generated. At Lansdowne and Naukuchiyatal design of proposed Yoga Centers and Panchkarma facilities will enable efficient drainage of the sites and maintain natural drainage patterns. Rishikesh site is close to Ganga River and Lansdowne site is on hill top so both sites have swift drainage	Natural drainage of sub-project sites and surroundings	PIU/DSC	PMU	During finalization of design and during implementation	DSC/PMC professional fee
9	Construction Camps - Location, Selection, Design and Layout	In the current project works are minor in nature (internal alterations and rearrangements in the existing building of resorts/TRHs) so construction camp establishment is ruled out. The Contractor(s) needs to take workers accommodation in the nearby residential areas.	Locations of material storage areas, sanitation facilities	Contractor(s)	DSC/ PIU	At the time of construction camp establishment and finalization of storage areas	Contractor

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
		Location for stockyards for construction materials shall be identified within the sub-project sites (within the property boundary of Resorts/TRHs) in consultation with TRH/Resort management so that there is no disruption of functioning of resorts /TRHs. Construction workers will be allowed to use common toilets in the Resorts/TRHs during construction. In no case waste water will be discharged outside construction 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.	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	NOCs from Rajaji National Park for Construction	To Meet EARF requirements NOCs for construction works in protected areas are to be	NOC copies	PIU	PMU	Follow up with park officials	PIU

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
	works in Chilla Resort and Jim Corbett National Park for construction works in Mohaan Resort.	obtained. Accordingly ensure NOCs from respective Parks are available before start of construction works at Chilla and Mohaan Resorts				for NOCs	

Table 21: 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 Rishikesh and Lansdowne) before commencement of construction. At other locations works are to be done within the existing buildings so requirement of shrubs and vegetation removal is anticipated. All	Site clearance plan and demarcation of construction areas	Contractor(s)	DSC / PIU		Contractor(s)

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
		works shall be carried out such that the damage or disruption of flora other than those identified for cutting is minimum. 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 All areas used for temporary construction operations will be subject to complete restoration to their former condition with appropriate rehabilitation procedures. No area for temporary construction will be planned out TRH/Resort premises				Construction sites delineation	
2	Drinking water	Sufficient supply of cold	Availability of	Contractor(s)	DSC/ PIU	Regularly during	Contractor(s)

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
	availability	potable water to be provided and maintained. This water will be arranged from the existing TRH/Resort water supply.	water at Resorts/TRHs, drinking water quality results			construction phase	
3	Waste disposal	The pre-identified disposal locations for each sub-project site shall be part of Comprehensive Waste Disposal Plan. Solid Waste Management Plan to be prepared by the Contractor(s) at respective sub-project sites in consultation and with approval of Environmental Specialist of DSC. The Environmental Specialist of DSC shall approve these disposal sites after conducting a joint inspection on the site with the Contractor. Contractor(s) shall ensure that waste shall not be	Waste Disposal sites, waste management plan	Contractor(s)	DSC / PIU	Regularly during construction phase	Contractor(s)

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
		disposed off near any water course (Ganga River at Rishikesh, Kosi River at Mohaan and Canal at Chilla) or local streams close to sub-project sites, Forest area, National Park area, agricultural land, Orchards, Natural Habitats like Grasslands, etc.					
4	Stockpiling of construction materials	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. The stock piling will not be done outside boundaries of TRH/Resort. It will be ensured that stockpiling of construction	Identified locations of stockpiling	Contractor(s)	DSC/ PIU		Contractor(s)

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
		materials does not have any conflict with the functioning of TRH/Resort					
8	Water Pollution from Construction Wastes	The Contractor(s) shall take all precautionary measures to prevent entering of wastewater into local streams, and water bodies, during construction. For this it will be ensured that construction workforce is allowed to use existing common toilet blocks near the construction sites at resorts/TRHs No vehicles washing will be carried out in Ganga river at Rishikesh site, Kosi River at Mohaan site and Canal at Chilla site. There will also not be any vehicle washing at any of the sub-project sites.	Vehicle parking and washing areas	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)
11	Generation of	The contractor(s) will take	Air quality	Contractor(s)	DSC /PIU	Regularly during	Contractor(s)

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
	dust	every precaution to reduce the levels of dust at construction sites. All earthworks to be protected/ covered in a manner to minimize dust generation.	monitoring results, water sprinkling frequency			construction phase	
12	Emission from Construction Vehicles, Equipment and Machinery	All vehicles, equipment and machinery used for construction shall conform to the relevant Bureau of India Standard (BIS) norms. The discharge standards promulgated 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	Pollution under control certificates for vehicles and machinery	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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
		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 stopped during the night time between 10.00 pm to 6.00 am. Noise limits for construction equipment used in this project will not	Noise under control certificates, noise monitoring results	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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
		exceed 75 dB (A).					
14	Material Handling at Construction Site(s)	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. 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(s).	Records of availability of personal protective equipment (PPE), training records for use of PPEs	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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
15	Disposal of Construction Waste / Debris	The Contractor(s) shall ensure safe disposal of the construction waste through disposing off the waste at the pre-identified disposal locations. These locations will be finalized at each site in consultation with environmental expert of DSC. 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 to be prepared during construction phase. No construction waste will be disposed off in forest/National Park areas.	Disposal sites, waste utilization/disposal records	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)
16	Safety Measures During	Adequate safety measures for workers during handling of	Safety training program records,	Contractor(s)	DSC/ PIU	Regularly during construction phase	Contractor(s)

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	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 sustained during the course of work. The Contractor(s) will conform to all anti-malaria instructions given to him by the Engineer.	availability of first aid kits and trained personnel				
17	Clearing of Construction sites	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	Pre-construction records and photographs, disposal site rehabilitation	Contractor(s)	DSC/ PIU	after construction phase	Contractor(s)

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
		expense, to the entire satisfaction of the Engineer					
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)
20	Construction works in Resorts located in National Parks (Chilla and Mohaan Resorts)	Construction works in Chilla and Mohaan resorts should be taken up meeting the requirements laid down in the NOCs issued by the respective parks. The workers should be sensitized not to harm the animals and not to damage the plantation	NOC conditions	Contractor (s)	DSC/PIU	During entire construction phase	Contractor(s)

Table 22: 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 National Parks near Chilla and Mohaan Resorts	Each Resort/TRH at Chilla and Mohaan will prepare 'Do and Don't list for tourists staying at resorts for necessary precautions to avoid any conflict with wild life. In the night time main gate will remain closed or manned to avoid movement of tourists in night in the National parks. Any condition laid down in respective NOCs should be adhered to.	'Do and Dons' compliance	TRH/ Resort Officials / PIU	Tourism department / PMU	Regular watch of tourist movement	Tourism Department / PMU
4.2	Waste oil generation on account of Panchkarma facilities and its safe disposal	It will be ensured that waste oil from all equipment is collected and stored in jerry cans. This oil should be sent back to the suppliers for recycle or reuse.	Waste oil collection, and storage	TRH/ Resort Officials / PIU	Tourism Department and Management of respective Resorts/TRHs / PMU	On daily basis	Tourism Department / PMU
4.3	Unhygienic conditions due to poor maintenance	Tourism department through GMVN and KMVN will carry out maintenance of sanitation facilities at all the sub-project	Maintenance schedule of sanitation facilities	TRH/ Resort Officials / PIU	Tourism department / PMU	Every year during Tourist season	Tourism Department / PMU

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
	of sanitation facilities and irregular solid waste collection	sites, and carry out the regular collection and disposal of wastes to a designated waste treatment sites close to sub-project sites. Waste water will not be discharged to Ganga River at Rishikesh, Kosi river at Mohaan and Canal at Chilla. Septic tanks will be regularly emptied at TRHs/Resorts.					

2. Environmental Monitoring Plan

135. 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 23**. 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 23: Monitoring Plan for Yoga Centers and Traditional Medicine Panchkarma Facilities

Sl. No.	Field (Environmental Attribute)	Phase	Parameters to be Monitored	Locations	Frequency	Responsibility
1	Air Quality	During pre-construction phase During Construction Phase	CO, NOx, PM10, PM2.5, and SO_2	(a) One sample at each sub-project site ((Dhanaulti, Chilla, Rishikesh, Lansdowne, Mohaan, Chiliyanaula, Kausani, Choukori, Naukuchiyatal and Sukhatal) during pre construction to establish baseline (b) One sample at each sub-project site when construction is in progress at all ten locations(Dhanaulti, Chilla, Rishikesh, Lansdowne, Mohaan, Chiliyanaula, Kausani, Choukori, Naukuchiyatal and Sukhatal)	1- Once during pre construction phase 2- Once in every quarter (except monsoon) during construction phase	Contractor (s)
2	Water quality	During pre-construction phase During Construction Phase	TDS, TSS, pH, Hardness, BOD, Faecal Coli form	(a) One sample during pre construction phase to establish baseline at each sub-project site ((Dhanaulti, Chilla, Rishikesh, Lansdowne, Mohaan, Chiliyanaula,	1- Once during pre construction phase 2- Once in every quarter (except monsoon) during construction phase	Contractor(s) (s)

Sl. No.	Field (Environmental Attribute)	Phase	Parameters to be Monitored	Locations	Frequency	Responsibility
				Kausani, Choukori, Naukuchiyatal and Sukhatal) (b) Surface Water (Ganga River at Rishikesh site, Kosi River near Mohaan site and Ganga canal at Chilla site) at other locations there are no surface water sources.		
3	Noise Levels	During pre-construction phase During Construction Phase	Leq (Day), Leq (Night), Leq max, Leq Min,	(a) Once during pre construction phase at each sub-project location (10) to establish baseline conditions (b) At all ten locations of sub-project((Dhanaulti, Chilla, Rishikesh, Lansdowne, Mohaan, Chiliyanaula, Kausani, Choukori, Naukuchiyatal and Sukhatal) during construction phase(2 years)	1- Once during pre construction phase 2- Once in every quarter (except monsoon) during construction phase	Contractor(s)
Note: Environmental monitoring during operation phase has not been planned due to relatively small scale activity of Panchkarma and Yoga Centers. The pollution generation will not be to the extent demanding monitoring during operation phase.						

3. Capacity Building

136. In addition to the primary objective of promoting and creating Yoga Centers and Panchkarma facilities at 10 selected resorts of TRHs/Resorts of KMVN/GMVN, 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 Yoga Centers and Panchkarma facilities. 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.

137. 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 24** below.

Table 24: Training Modules for Environmental Management

Program	Description	Participants	Duration	Training Conducting Agency
A. Pre-Construction Stage				
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, KMVN and GMVN officials at Resorts/TRH sites, 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 projects	Contractor, KMVN/GMVN management staff at Resorts/TRHs and DSC staff and PIU staff of the implementing agencies	1/2 Working Day	Environmental Specialist of the DSC
Session 2 (at Sub-project sites)	Environmental components impacted in construction	Contractor(s) work force	¼ Working Day	Safeguards Specialist of the

Program	Description	Participants	Duration	Training Conducting Agency
	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			DSC
B. Construction Stage				
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 PMU/PIU (including the ES) and Contractor(s) staff and GMVN/KMVN staff involved	¼ Working Day	Safeguards Specialist of the DSC
Session 4	Monitoring and Reporting System for safeguards in the project	Contractor(s) and PIU staff deployed at Site	¼ Working Day	Safeguard Specialist of the DSC
Session 5	EHS requirements during construction	Contractor(s) 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

138. 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 summary budget for the environmental management costs for the sub-project is presented in **Table 25.**

Table 25: Environmental Management and Monitoring Budget (INR)

S. No.	Particulars	Stages	Unit	Total Number	Rate (INR)	Cost (INR)	Source of Fund
A. Monitoring During Pre -Construction Phase							
1	Air Quality	Construction	Per Sample	10 locations x 1 sample each location	9,000	90,,000	Contractor Budget
2	Noise Quality as per National Ambient Noise Standards on dB (A)scale	Construction	Per Location	10 locations x 1 sample per location	3,000	27,000	Contractor Budget
3	Water Quality (Ground/water supplied to TRHs/Resorts)	Construction	Per Sample	10 locations x1 sample per location	8,000	80,000	Contractor Budget
Sub Total (A)						**197,000**	Contractor Budget
B. Monitoring During Construction Phase							
1	Air Quality	Construction	Per Sample	10 locations x 6nos	9,000	5,40,000	Contractor Budget
2	Noise Quality as per National Ambient Noise Standards on db (A)scale	Construction	Per Location	10 locations x 6 nos.	3,000	1,80,000	Contractor Budget
3	Water Quality	Construction	Per Sample	10 locations x 6 nos.	8,000	480,000	Contractor Budget
Sub-Total (B)						**1,200,000**	**Contractor Budget**
C.	**Capacity Building Training**						
1	Sensitization Workshop	Pre-Construction	L.S	2	50,000	1,00,000	PMU
2	Training session	Construction	L.S	4	50,000	2,00,000	PMU
Sub-Total (C)						3,00,000	
Total (A+B+C)						**16,97,000**	

5. Environmental Monitoring and Reporting

139. 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 towards 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.

140. ADB will review project performance against the Executing Agency'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 on Government of India ng basis until a project completion report is issued.

VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

1. Process For Consultations Followed

141. 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.

142. 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 living near the TRHs/Resorts 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 and other stakeholders and agencies.

143. 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 PIUs at Kotdwara and Bhimtal, 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.

144. During the consultations local public residing near TRHs/Resorts and other stakeholders of sub-project area opined that this is a good move by the UTDB as there are no Yoga Centers and Panchkarma facilities even in private resorts. This will give an additional benefit to KMVN and GMVN for attracting guest. The sub-project implementation will help capacity development of locals as need for trained Yoga instructors and Panchkarma specialist will be created. They demanded fast implementation of the sub-project. The dates of consultations and stakeholders consulted have been summarized in **Table-26** The views, comments and suggestions of stakeholders and their incorporation in project design are presented in **Table-27.** The records of consultations (list of participants with signatures) and consultation photographs are given in **Annexure-7**.

Table 26: Dates and Stakeholders Consulted

Place of Consultations	Date of Consultations	Participants	Number of Participants
Chilla Resort	28/12/2016	GMVN Resort officials, Forest Officials, shop owners, tourists	5
Ganga Resort Rishikesh	29/12/2016	GMVN Resort officials at site, locals, and Tourists	8
TRH Dhanaulti	17/1/2017	GMVN Officials at TRH, Local Villagers, local shop keepers, tourists	7
Mohaan Resort of KMVN	18/1/2017	KMVN officials posted at site , Local Villagers, shopkeepers	9
Chiliyanaula	19/1/2017	KMVN officials posted at site , Local Villagers, shopkeepers and Tourists	9
Kausani TRH of KMVN	19/1/2017	KMVN officials posted at site , Local residents of Kausani near TRH, shopkeepers and Tourists	13
Choukori TRH of KMVN	19/1/2017	KMVN officials posted at site , Local residents of Kausani near TRH, shopkeepers and Tourists	9
Naukuchiyatal TRH of KMVN	20/1/2017	KMVN officials posted at site , Local residents of Naukuchiyatal near TRH, shopkeepers local NGO and Tourists	10
Sukhatal (Nainital)TRH of KMVN	20/1/2017	KMVN officials posted at site, GM of KMVN, shopkeepers, locals and Tourists	11
Lansdowne TRH of GMVN	21/1/2017	GMVN officials posted at site, shopkeepers near TRH, l and Tourists	10

Table 27: Views, Comments and Suggestions of Stakeholders and Consideration in sub-project Design

Issues discussed	Suggestions and Views	Consideration in Project Design
1. Sub-project details, project benefits, project related proposed infrastructure, , and livelihood opportunities, through tourism activities, sanitation facilities, waste water, air pollution and noise pollution during construction, etc. 2. Improvement of infrastructure like W/S, SWM, Solar Lighting, etc. 3. Project related capacity building program, livelihood training programs etc. 4. Management of Yoga Centers and Panchkarma facilities	1- At all locations of sub-projects, the GMVN and KMVN officials posted expressed happiness for planning Yoga Centers and Panchkarma facilities at TRHs and Resorts. They demanded for quick implementation of the sub-projects. 2 Forest officials at Chilla welcomed the project and informed that the construction facilities in Chilla resort is not an issue for them as tourism activities are permitted in Forest working plan. The project team enquired about wild animal conflicts around Resort. The GMVN officials told there is no conflict as Resort close to Chilla village and Forest department organizes Safaris for the tourists from Forest Post nearby. 3- Participants at Mohaan resort suggested that trained Yoga instructors and Panchkarma specialist may not be available locally. KMVN should first take some specialist from market and then build capacity of locals. The participants also told the project team local private resorts in Ram Nagar do not have these facilities, so these facilities will have good demand from Tourists. Project team enquired about conflict with the wild life. The officials told that there is conflict as site is surrounded by habitations. Core park area is about 15 km from Resort. There is one	1- The project during operation phase will arrange trained manpower to operate Yoga Centers and Panchkarma facilities. The project will do capacity building of locals in this area through the NGO already on board. 2- Water scarcity issue during summer at Dhanaulti has been noted and conveyed to GMVN management. Adequate arrangements for water supply will be ensured at Panchkarma facility Center in the TRH 3- The suggestion for consideration of 4 bedded rooms for Panchkarma noted and conveyed to PMU. But all designs completed considering store room for Panchkarma facilities. 4- The suggestion of good maintenance of facilities including sanitation facilities has been noted. The maintenance schedule for the facilities will be prepared as part of operation manual after completion of construction. 5- There will be wide publicity about availability of facilities through print media and websites of UTDB and respective resorts. . 6- As per suggestion of NGO, landscaping around Yoga Center and

Issues discussed	Suggestions and Views	Consideration in Project Design
	Ayurvedic Medicine factory operating adjacent to Resort. 4- Participants at Dhanaulti suggested for improved water supply in the TRH and tourist's participants welcomed the additional facilities of Yoga Centers and Panchkarma. 5- The KMVN officials at Chiliyanaula suggested that a 4 bedded room is sufficient for Panchkarma facilities, so store room selected for these facilities should be replaced with 4 bedded rooms. The locals welcomed the project and suggested to keep rates reasonable for the facilities 6- All participants at Choukori told the project team that their TRH is always full, so creation of these facilities will further add attractions. This will increase indirect employment of locals and improvement in income also. The participants demanded for good maintenance of facilities during operation phase. 7-The participants at Naukuchiyatal TRH suggested that near Yoga Center some landscaping should be taken and local vegetation should be removed. The site for Yoga center and Panchkarma should be close to Jheel. The participating NGO suggested that wide publicity should be given to these facilities so as to recover investment cost fast. The told the project team that trained manpower to run these facilities is not available. After hiring few trained personals capacity development of locals should	plantation of shrubs has been considered. The cost for this has been built in EMP cost. 7- There is availability of adequate sanitation facilities at each TRH and Resort. But as part of project design bath rooms have been planned at Panchkarma facilities.

Issues discussed	Suggestions and Views	Consideration in Project Design
	be done. The NGO also suggested for availability of good sanitation facilities near Yoga Center and Panchkarma facilities. 8- The participants at Lansdowne demanded availability of good sanitation facilities in the new premises of Yoga Center and Panchkarma to construct at TRH. They also demanded for safety railing around the facility because site is undulating and on steep slope. The shopkeepers suggested for wide publicity for these facility. 9- The participants at Kausani TRH suggested that good sanitation facilities should be maintained at Panchkarma facilities. The tourists staying demanded fast implementation and suggested for wide publicity of the planned facilities. They told the participants that trained manpower for these facilities is not available at Kausani. Specialist has to be brought from plains. 10. The participants Sukhatal told the project team that the facilities of Panchkarma are only available in one hotel Manumaharani, which has very high rates, so there will be good demand at reasonable rates. The participants demanded good design and told that temperature should be maintained at Panchkarma facilities. They demanded for good maintenance of facilities including sanitation facilities.	

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

2. Future Consultation And Information Disclosure

146. To ensure continued public and stakeholder participation in project life cycle regular consultation is proposed. A grievance reddressal cell will be set up within the PIUs Kotdwara and Bhimtal 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 locations, an extensive project awareness campaigns will be carried out.

Information disclosure

147. 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.

148. 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

The public consultation records showing list of participants, contact number, signature and photographs of consultations are given in **Annexure 7.**

3. Grievance Redress Mechanism

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 PIUs, 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 (GMVN/KMVN), representative of local area, Special invitee, etc. This will be constituted by respective PIUs in consultation with PMU.

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

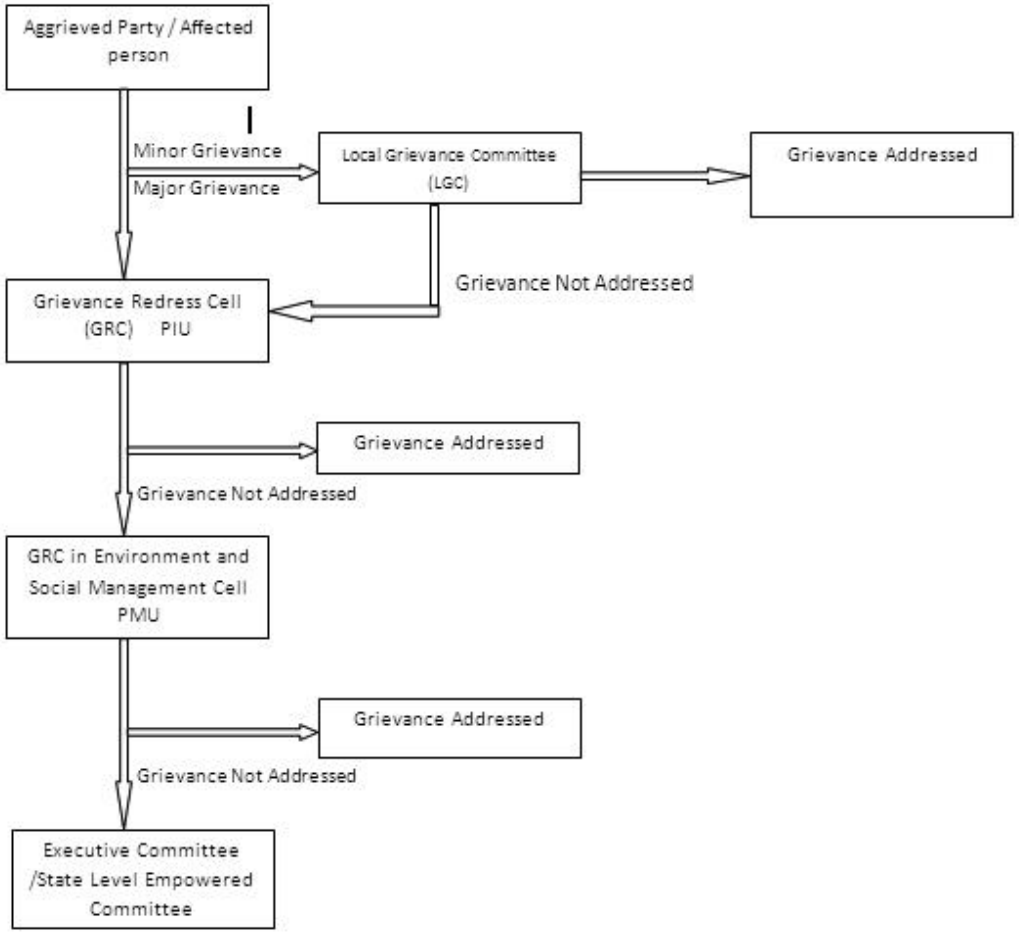
(a) Web based: A separate corner will be developed at the program website so that public / community/ affected person can register their complaint in the online column.

(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 grievance redress mechanism has also been shown in **Figure-6** below.

Figure 6: Grievance Redress Mechanism in IDIPT, Uttarakhand



Note:

1. LGC - NGO, Line Agency, Representative of Gram Panchayats, 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

149. 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 creation of Yoga Centers and Panchkarma facilities at the selected resorts/TRHs of KMVN and GMVN, 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.

150. 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. The project related facilities will not have any impacts on National Parks as these are planned within the boundary of Resorts. The operation of these resorts is consistent with National Park and Forest Management Plan. It is further recommended that construction works for Yoga Centers and Panchkarma facilities in Chilla and Mohaan resorts should be started after NOCs from respective parks have been obtained. Any conditions laid down in NOCs should be adhered to during construction and operation phases.

151. 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

152. 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.

153. 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. No impacts on National Parks have been identified. But construction works in the Chilla and Mohaan resorts will only be undertaken after NOCs are available.

154. 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
A. PROJECT SITING IS THE PROJECT AREA ADJACENT TO OR WITHIN ANY OF THE FOLLOWING ENVIRONMENTALLY SENSITIVE AREAS?			
▪ CULTURAL HERITAGE SITE		√	None of the sub-project site (selected TRHs/Resorts selected for Yoga Centers and Development of Traditional Medicine Panchkarma) is close to any cultural heritage site.

Screening Questions	Yes	No	Remarks
▪ LEGALLY PROTECTED AREA (CORE ZONE OR BUFFER ZONE)	√		Two sub-project sites are located in National Parks (Chilla Resort in core zone of Rajaji National Park and Mohaan Resort in buffer zone of Jim Corbett National Park). But facilities related to Yoga Center and Panchkarma are planned within boundary limits of Resorts. These resorts are already in operation. The sub-project activities will have not had any impact on National Parks. Further, the activities planned in Yoga Centers and Panchkarma facilities are consistent with Forest/ National Park Management Plan. To meet EARF requirements, NOC / Permission from Directors of respective national parks is being obtained. The request letters for NOCs from respective parks have been given in **Annexure-6.**
▪ WETLAND		√	None of the sub- project site is close to wetland
▪ MANGROVE		√	Not applicable
▪ ESTUARINE		√	Not applicable
▪ SPECIAL AREA FOR PROTECTING BIODIVERSITY	√		Two resorts where Yoga Centers and Panchkarma facilities are planned are in National Parks. But facilities are planned within the existing buildings of these resorts. NOC from respective parks is being obtained.
▪ BAY		√	Not Applicable
B. POTENTIAL ENVIRONMENTAL IMPACTS WILL THE PROJECT CAUSE…			

Screening Questions	Yes	No	Remarks
▪ 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 within the existing Resorts/TRHs. The sub-projects implementation does not require any tree cutting.
▪ 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 planned within the existing resorts and TRHs operated by KMVN and GMVN and planned activities of sub-projects are of consequence to water body; therefore, no impacts on hydrology are anticipated. But sites being sufficiently away from water courses, therefore, construction activities will not lead to increased sediment in streams.
▪ Deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?		√	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 and construction camps are not planned due to very small nature of civil works. The storage of construction materials will be within the TRHs/Resorts boundaries. The boundaries of Resorts and TRHs are away from water bodies.
▪ Increased air pollution due to project construction and operation?	√		There will be minor air pollution generation during construction stage due to material handling, storage and transport. 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.

Screening Questions	Yes	No	Remarks
▪ Noise and vibration due to project construction or operation?	√		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 are not foreseen Yoga Centers and Panchkarma facilities operations will not generate any noise.
▪ Involuntary resettlement of people? (physical displacement and/or economic displacement)		√	None of the site under consideration for Yoga Centers and Panchkarma facilities involves involuntary resettlements.
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		√	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 sites as occupancy of KMVN and GMVN TRHs and Resorts is expected to improve. The locals will also direct and indirect employment.
▪ 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?		√	No such impacts are anticipated as construction camps are not planned at sub-project sites. 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.
▪ Creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?		√	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. The construction of Yoga Centers and Panchkarma facilities is planned within the existing buildings of Resorts/TRHs through interior alterations and building refurbishment. During operation phase also no such issues are anticipated.

Screening Questions	Yes	No	Remarks
▪ Social conflicts if workers from other regions or countries are hired?		√	Social conflicts are not anticipated as works to be executed are of small nature and Contractor(s) will employ locally available work force. No construction camp establishment is planned within the Resorts/TRHs selected for Yoga Centers and Panchkarma facilities.
▪ Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?		√	No large influx of population during the construction is anticipated as project activities are spread at 10 locations for infrastructure creation for Yoga Centers and Panchkarma facilities. The construction camps will not be established at the sub-project sites. Contractors will employ local work force. During operation phase there will be influx of tourists visiting the Resorts/TRHs, but this will not affect local social infrastructure because tourists will use already available social infrastructure at KMVN/GMVN Resorts/TRHs.
▪ Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?		√	During construction necessary protection measures will be taken up to avoid occupational safety and health risks to the construction workers. During the operation phase, already available 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.

Screening Questions	Yes	No	Remarks
▪ 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?		√	No risks to community health and safety are anticipated as adequate precautions will be taken by the contractors as per contract provisions and EMP monitoring and implementation will be effective. During operation phase no such hazards are anticipated as operations of Yoga Centers and Panchkarma facilities will not cause any risks to community health and safety.
▪ 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?		√	The project related structures to be constructed are small in nature at most of the locations, Yoga Centers and Panchkarma facilities are planned within the already existing buildings of TRHs/Resorts. Accidental hazards will be handled as part of management of tourists movements. The natural hazards such as earthquake or heavy rainfall, floods, snowfall, etc. will be handled as part of Disaster Management Plan preparedness.
▪ Generation of solid waste and/or hazardous waste?		√	The project plans provisions for collection, handling and disposal of solid waste at locations of sub-project. During construction waste generated will be disposed off at identified disposal sites. During operation phase insignificant waste generation will take place. This waste generated from operations of Yoga Centers and Panchkarma facilities will be disposed off as per provisions of Municipal Waste (Management and Handling) Rules 2000, along with waste generated at Resort/TRHs. No hazardous waste generation is anticipated during operation phase.
▪ Use of chemicals?		√	The sub-project activities will not use any chemicals during construction and operation phase.

Screening Questions	Yes	No	Remarks
▪ Generation of wastewater during construction or operation?		√	The waste water generated during construction will be collected and diverted to already available septic tanks/ soak pits at the KMVN/GMVN TRHs. During operation phase also waste water generated from Panchkarma facilities will be diverted to existing septic tanks of Resorts/TRHs.

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
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?	0	All the sub-project sites are within existing Resorts/TRHs. These sites of TRHs and Resorts are a stable locations connected with all weather roads. Hence sub-project sites are not likely to be affected by extreme weather events.
	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	Except Ganga Rishikesh, Chilla and Mohaan Resorts , all other seven Resorts/ TRHs are sufficiently away from Rivers and do not face peak river flow or water level issues. The Resorts at Chilla, Mohaan and Rishikesh are sufficiently away from Rivers/ Canal. None of the subproject sites face any peak wind speed issue.

Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters) likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?	1	Yes, the construction materials for the project related facilities has been finalized considering weather conditions at the resorts.
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?	1	Yes, maintenance of project related facilities will be affected due to weather conditions.
Performance of project outputs	Would weather/climate conditions and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?	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)

Component	Criteria	Remarks
Overall selection criteria	**1.** Will be fully consistent with management plans or master plans for the area	The sub-project activities will take place in already existing and operating TRHs/Resorts of GMVN and KMVN. These Resorts and TRHs are fully consistent with local master plans. Hence sub-project complies with master plans of local areas.
	2. Will avoid resettlement/relocation. If unavoidable the extent of resettlement will be minimized.	No resettlement and relocation involved as sub-projects are planned in the existing and operating resorts and TRHs of GMVN and KMVN.
	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.	The sub-project activities will not result in destruction of or encroachment on to Protected areas, National Parks, Sanctuaries, Conservation Reserves, community reserves, etc. Two sub-project sites (Mohaan Resort and Chilla Resorts) are located in National Parks. But all sub-project activity will be confined within the existing premises of these Resorts.
	4. Will be in line with the Conservation Plan/management plan for the conservation and management of the Protected areas	Yes, the sub-project activities are in line with Conservation Plan/ management plans of the protected areas at Mohaan and Chilla Resorts as these resorts are already operational and average tourist occupancy in Chilla and Mohaan is 31% and 21% respectively. NOCs for proposed activities from the respective National Park Authority has been applied and all conditions of the NOCs shall be complied. For balance 8 locations of sub-project, this is not applicable.
	5. Will promote tourism related activities in protected areas, in the zones earmarked for tourism development, the scale and extent of which shall be in line with the provisions in the Management Plan	Yes, 2 sub-project sites (within existing Resorts) in National Parks will promote tourism. The scale and extent of tourism activities is in line with the provisions of management plans. Balance 8 sites are away from National Parks and Conservation areas. As per requirements of EARF, NOCs from the Directors of respective national parks will be obtained.
	6. Will not result in destruction of or encroachment onto archaeological monuments/heritage sites and will be in line with the master plan proposals for the conservation and preservation of the site/monuments	The sub-project sites are not close to any Archaeological site notified by State Archaeology Department or Archaeological Survey of India (ASI) as these are in already existing and operating Resorts/TRHs of KMVN and GMVN.

Component	Criteria	Remarks
	7. 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 Yoga Centers and Panchkarma facilities at identified TRHs/Resorts of KMVN and GMVN will not involve any major works within prohibited or regulated areas as no ASI notified monument/heritage site exists in the vicinity (within 500 m).
	8. Will reflect inputs from public consultation and disclosure for site selection	Meaningful public consultations have been done from planning phase and inputs have been considered in the project design. These have been detailed in IEE report.
	9. Will not introduce any elements or components that are invasive upon the sanctity and significance of the cultural heritage site, including large scale commercial activities or creation of new land uses with potential to trigger induced development and land use changes around the sites	The sub-project will not introduce any element or components that are invasive upon sanctity of cultural heritage sites. There are no cultural heritage sites in the vicinity of sub-project sites.
	10. Will introduce landscaping and other tourist infrastructure in line with the environmental quality of the tourist destinations, such as landscaping in harmony with the natural vegetation and diversity and not encourage introduction of species that are invasive	No new/alien species shall be introduced. No landscaping as part of sub-project has been planned.
	11. Will not result in development of physical infrastructure/ tourism amenities that would impair the environmental conditions due to lack of management capacities or high O&M costs	The sub-project activities (Yoga Center and Panchkarma facilities) are such that these will not impair the environmental conditions, however, 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.
	12. Will reflect inputs from public consultation and disclosure for site selection	Inputs from major stakeholders like District Authorities, GMVN and KMVN officials, state forest department, District Tourism Department and local population residing close to sub-project sites have been incorporated in the designs and planning. These have been detailed in IEE report.
Conservation measures and excavation measures-in	13 Will observe the principle of not altering the historic condition and shall involve treatment of damage caused by natural processes and human	The construction works of sub-projects (at the existing resorts and TRHs of KMVN and GMVN) will not alter any portion of existing buildings, temples or any other

Component	Criteria	Remarks
and around Cultural properties and protected Monuments/ Structures.	actions and prevention of further deterioration, using both technical and management measures.	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 Yoga Centers and Panchkarma facilities, 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 neither close to any protected monuments/structures nor sub-project plans to carry out any works on the Protected Monuments or structures. Hence this is not applicable.
	16 Will ensure that physical remains are conserved in their historic condition without loss of evidence. Respect for the significance of the physical emails must guide any restoration. Technical interventions should not compromise subsequent treatment of the original fabric. The results of intervention should be unobtrusive when compared to the original fabric or to previous treatments, but still should be distinguishable	Not applicable because the Yoga Center and Panchkarma facilities 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.	The Yoga Centers and Panchkarma facilities are planned within the existing buildings of Resorts and TRHs operated by KMVN and GMVN. The construction works are minor, involving only alterations in the interiors of building. Hence no new materials or techniques are planned to be used. The operation of Yoga Centers and Panchkarma 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	Not Applicable

Component	Criteria	Remarks
	of a sites setting contribute to its significance and should be integrated with its conservation	
	20. Will ensure that during archaeological excavation care be taken to conserve the physical remains. A practical plan for the conservation of a site-both during and after excavation-should be submitted for all site programmed for excavation	Not Applicable
	21. Will ensure that treatment of the cultural heritage site and its environs is a comprehensive measure to prevent damage from natural processes and human actions, to reveal the historic condition of a site, and to allow its rational use. Service building should be as far as possible from the principal area of the site. Landscaping should aim to restore the site to its historic state and should not adversely affect the site: contemporary gardening and landscape concepts and designs should not be introduced.	Not Applicable
Conservation and habitat protection measures- in and around the natural heritage assets and protected areas.	22. Will observe the principle of not adversely impacting the habitat quality of the protected area and shall involve treatment of damage caused by natural processes and human actions and prevention of further deterioration, using both technical and management measures.	The sub-project activities will not cause any impact on habitat quality of 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 as all sub-project infrastructure planned within the existing Resorts/TRHs.
	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.	The sub-project activities will not have any impacts on areas of significant diversity habitats as these are far away from Mohaan and Chilla Resorts. The other locations of Sub-projects are at a distance

Component	Criteria	Remarks
		more than 25 km from the National Parks.
	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 no works in the sub-projects are planned in Protected sites or monuments.
	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 treatment systems nearby, unless no such systems are available in the vicinity.	The water requirement for all sites will be met from supply source of Resorts and TRHs where Yoga Center and Panchkarma facilities are planned. The water requirements for the sub-project will be only for sanitation purposes and very minimal. At locations of KMVN and GMVN resorts treated water supply is available.
	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 KMVN and GMVN Resorts. The project activities will not require any ground water abstraction or pumping.
	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 already existing septic tanks at the TRHs and Resorts will be used during construction and operation phases.
	33. Will ensure proper and adequate treatment and disposal facilitates for increased volumes of wastewater generation	Not much waste water generation envisaged due to operations of Yoga Centers and Panchkarma facilities. Septic tanks of sufficient capacity are available at the Resorts and TRHs. These will be used for sub-project activities also.
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	No new septic tank or soak pit planned to be constructed as part of the sub-project.

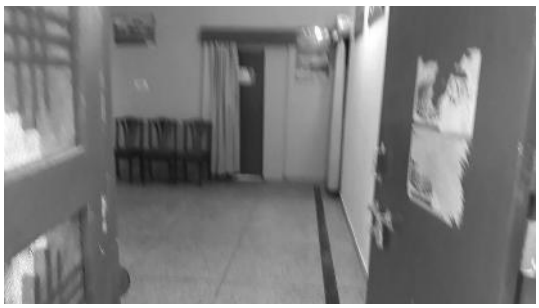
Component	Criteria	Remarks
	close to water intake or water usage points, or areas prone to flooding or water logging	
	35. Will ensure that sanitation improvements proposed do not result in pollution of groundwater.	No additional sanitation improvements are planned at sub-project sites. The existing sanitation facilities at the TRHs and Resorts will be used during construction and operation. 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. The construction activities in the sub-project are very minor and within the buildings.
	37. Will not impair downstream water quality due to inadequate sewage treatment or release of untreated sewage,	Not envisaged as septic tank pits of adequate capacity exist at the sub-project sites. During construction phase also existing sanitation facilities will be used.
	38. Will not cause overflows and flooding of surroundings, especially around the heritage sites with raw sewage.	The existing septic tanks are of adequate capacity, overflow and flooding not anticipated as sub-project activities will not increase waste water generation in significant proportions. The septic tanks will be emptied every quarter through a vacuum sludge truck. The responsibility of septic tank cleaning lies with the Resort/TRH Management. The KMVN and GMVN managements have tie-ups with private agencies for soak pits maintenance.
Solid waste management	39. Will ensure that the disposal of solid wastes will not result in degradation of aesthetics in the vicinity of the proposed tourist areas	There is provision of waste segregation at source through separate Bio-degradable and Non- Biodegradable Waste bins and suitable disposal arrangements at all locations of sub-project sites. The waste generated from Yoga Centers and Panchkarma facilities will be disposed off along with the waste of TRH/Resort.
	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 at Lansdowne and Rishikesh sites. At other locations works are proposed within the existing buildings only. The works are small in nature.
	41. Will ensure that for composting pits for protected areas, the locations are	Not Applicable as all solid waste will be disposed off with waste of Resort/TRHs

Component	Criteria	Remarks
	devoid of any wildlife population, especially wild boars, porcupines	
	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	As part of sub-project no road construction planned, therefore, no question of vegetation clearance.
	44. Will ensure on dislocation and involuntary resettlement of people living in right of way.	Since road construction is not part of sub-project so this is not applicable
	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.	Since new road construction not part of project so this is not applicable
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 as all components of sub-projects within the boundary walls of existing and operating resorts and TRHs of KMVN and GMVN
	47. Will ensure adequacy of outfall of proposed drainage works, to avoid any impacts associated with flooding in downstream areas, or areas not covered	Not Applicable
	48. Will ensure effective drainage of the monument area, and provide for improved structural stability of the monuments	Not Applicable
Development of parking and other tourist infrastructure amenities	49. Will ensure no deterioration of surrounding environmental conditions due to uncontrolled growth around these facilities, increased traffic and increased waste generation resulting from improved infrastructure facilities. 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.	Any new growth or expansion will be within the regulations of Uttarakhand Tourism Development Board and local Civic authorities. No additional parking facilities are planned as part of sub-project. Traffic increase on account of sub-project operations will be insignificant. The sub-project will have a well-planned solid waste collection and disposal system as all sites are in existing TRHs and Resorts. Not envisaged. Project shall add to the aesthetic beauty of the sites through construction of Yoga Centers and enhance the visitor experience.

Annexure-3 Sub-project Sites- Photographs




Site photographs for Panchkarma and Yoga Centre at Ganga Resort, Rishikesh

Site photographs for Panchkarma and Yoga Centre at GMVN, Chilla




Site photographs for Panchkarma and Yoga Centre at GMVN Dhanaulti




Site photographs for Panchkarma and Yoga Centre at GMVN Tip N Top, Lansdowne




Site photographs for Panchkarma and Yoga Centre at KMVN, Mohaan




Site photographs for Panchkarma and Yoga Centre at KMVN, Chiliyanaula


Site photographs for Panchkarma and Yoga Centre at KMVN, Kausani


Site photographs for Panchkarma and Yoga Centre at KMVN, Chaokori


Site photographs for Panchkarma and Yoga Centre at KMVN Parichay, Naukuchiyatal


Site photographs for Panchkarma and Yoga Centre at KMVN, Sukhatal

Annexure-4 NOCs from KMVN and GMVN

1. No Objection Certificate from Garhwal Mandal Vikas Nigam Ltd.

GMVN
गढवाल मण्डल विकास निगम लि0.
74/1,राजपुर रोड, देहरादून
(उत्तराखण्ड शासन का प्रतिष्ठान)

E-Mail: gmvnl@gmvnl.com gmvn@sancharnet.in Ph :- 0135-2746817,2749308 Fax :- 2746847

पत्रांक 704/2016–17 दि0 20 जून–2016

सेवा में,
अतिरिक्त कार्यकम निदेशक
प्रोग्राम मैनेजमैंट यूनिट
इन्फ्रास्टेक्चर डवलपमेंट इन्वेस्टमैन्ट फार टूरिज्म(IDIPT)
पर्यटन भवन, गढ़ी कैन्ट, देहरादून।

विषयः– गढ़वाल मण्डल विकास निगम लि0 द्वारा संचालित कुल पांच इकाईयों में पंचकर्मा से सम्बन्धित केन्द्रों को विकसित किये जाने के संबन्ध में।

महोदय,

उपरोक्त विषयक आपके कार्यालय पत्र सं0 3774/2–10/ADB/IDIPT/373/2015–16 दिनांक 8 जून 2016 को संदर्भित करने का कष्ट करें। तद्सम्बध में दिनांक 13–06–2016 को सचिव पर्यटन/मुख्य कार्यकारी अधिकारी, महोदय, उत्तराखण्ड पर्यटन विकास परिषद, देहरादून के कक्ष में सम्पन्न हुई बैठक में गढ़वाल मण्डल विकास निगम लि0 द्वारा संचालित कुल पांच इकाईयों में स्थान उपलब्धता के सम्बन्ध में निम्नलिखित प्रस्ताव आपके अवलोकनार्थ प्रस्तुत है।

1– होटल अलकनन्दा, श्रीनगरः– कक्ष की उपलब्धता/वाथरूम के साथ डारमेट्री हाल के साथ साथ रूम उपलब्ध है।
कुल एरिया– 21X15 = 315 स्क्वायर फुट
मुख्य मार्ग से दूरी हाईवे से – 50 मी0

2– होटल धनोल्टी हाईट्सः– कक्ष की उपलब्धता/वाथरूम के साथ : होटल के पुराने भवन के डाईनिग हाल/किचन को पंचकर्मा सेन्टर के रूप में विकसित किया जा सकता है।
कुल एरिया– 37X19 = करीब 700 स्क्वायर फुट
मुख्य मार्ग से दूरी हाईवे से – 25 मी0

3– गंगा रिजोर्ट, ऋषिकेशः– कक्ष की उपलब्धता/वाथरूम के साथ : वर्तमान में पंचकर्मा भवन के भूतल में एक कक्ष बाथरूम के साथ उपलब्ध है।
कुल एरिया– 10X12 = करीब 120 स्क्वायर फुट
मुख्य मार्ग से दूरी – करीब 500 मी0

4– पर्यटक आवास गृह, चीलाः– आवास गृह के मुख्य भवन के भूतल पर निर्मित डोरमेट्री कक्ष बाथरूम के साथ उपलब्ध है।
कुल एरिया– 222 स्क्वायर फुट
मुख्य मार्ग से दूरी – 50 मी0

5– पर्यटक आवास गृह, लैन्सडाउनः– प्रबंधक आवास गृह में तीन कक्षों में से एक कक्ष को पंचकर्मा हेतु उपयोग में लाया जा सकता है, जिसमें बाथरूम भी है।

कुल एरिया– 10X12= करीब 120 स्क्वायर फुट
मुख्य मार्ग से दूरी – 100 मी0

भवदीय
18/6/16
(अतुल कुमार गुप्ता)
प्रबंध निदेशक

प्रतिलिपिः– सचिव पर्यटन/मुख्य कार्यकारी अधिकारी महोदय उत्तराखण्ड पर्यटन विकास परिषद, देहरादून को सादर अवलोकनार्थ प्रेषित।

(अतुल कुमार गुप्ता)
प्रबंध निदेशक

आई0डी0आई0पी0टी0, यू0टी0डी0बी0
गढ़ी कैन्ट, देहरादून
पत्र प्राप्ति संख्या 10951
दिनाँक 23.6.2016

2. No Objection Certificate from Kumaon Mandal Vikas Nigam Ltd.

Gmail

Uttrakhand Tourism Development Board Department of Tourism <utdb.pmu@gmail.com>

From-KMVN Regarding Yoga Centers.
1 message

KMVN, NAINITAL <kmvn@yahoo.com> Tue, Jul 19, 2016 at 12:19 PM
Reply-To: "KMVN, NAINITAL" <kmvn@yahoo.com>
To: Uttrakhand Tourism Development Board Department of Tourism <utdb.pmu@gmail.com>

PFA....!

Kumaon Mandal Vikas Nigam Ltd.
Oak Park House, Mallital,
Nainital - 263001 (Uttarakhand), India
Ph.: +91-5942-235700/236356 Fax: +91-5942-236897
Email: kmvn@yahoo.com, mdkmvn71@gmail.com
Web: http://www.kmvn.gov.in
Facebook: facebook.com/kmvnl

scan0008.jpg
542K

आई०डी०आई०पी०टी० पी०एम०यू०
गढ़ी कैन्ट, देहरादून
पत्र प्राप्ति संख्या 11102
दिनांक 19/07/16

पत्र संख्या 1830 /6– योग महोत्सव दिनॉक 13 जुलाई

सेवा में,

श्री आर0के0 जोशी,
एडिशनल प्रोग्राम डायरेक्टर,
पं0 दीनदयाल उपाध्याय पर्यटन भवन,
नियर ओएनजीसी हैलीपैड,गढ़ी कैन्ट,
देहरादून ।

महोदय,

कृपया अपने पत्र संख्या 3832/2–10– ADB/IDIPT/373/2015-16 दिनॉक 29.6.2016 एवं पत्र संख्या 3774/2–10/ADB/IDIPT/373/2015-16 दिनॉक 08 जुलाई 2016 का सन्दर्भ लेने का कष्ट करें । उक्त सन्दर्भ में अवगत कराया जाना है कि कुमाऊँ मण्डल विकास निगम द्वारा निम्नानुसार 05 पर्यटक आवास गृहों का चयन किया गया है –

1– पर्यटक आवास गृह, सूखाताल
2– पर्यटक आवास गृह, मोहान
3– पर्यटक आवास गृह, चिलियानौला
4– पर्यटक आवास गृह, कौसानी
5– पर्यटक आवास गृह, परिचय, नौकुचियाताल
6– पर्यटक आवास गृह, मोहान

आपके उक्त पत्रानुसार 05 पंचकर्मा केन्द्र स्थापित करने हेतु प्रत्येक आवास गृह में 900 स्क्वायर फिट स्थान उपलब्ध है ।

अतः इस पर अग्रिम आवश्यक कार्यवाही करने हेतु सम्बन्धित को निर्देशित का कष्ट करें ।

भवदीय,

(त्रिलोक सिंह अधिकारी)
महाप्रबन्धक, फोन

आई0डी0आई0पी0टी0, यू0टी0डी0बी0
गढ़ी कैन्ट, देहरादून
प्राप्ति संख्या 1102
क 19/07/16

Annexure-5 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		
		☐	☐	☐	☐		
		☐	☐	☐	☐		
		☐	☐	☐	☐		

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
Design Phase						
Pre-Construction Phase						
Construction Phase						
Operational Phase						

Overall Compliance with CEMP/EMP

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

APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

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

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

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

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

Air Quality Results

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

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

Water Quality Results

Site No.	Date of Sampling	Site Location	Parameters (Government Standards)					
			pH	Conductivity (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_{eq} (dBA) (Government Standard)	
			Day Time	Night Time

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

SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

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

Annexes

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

Annexure-6 Request Letters for NOCs from National Parks

Govt. of Uttarakhand

Program Management Unit
Infrastructure Development Investment Program for Tourism
(ADB Assisted – Loan No. 2833, India)
Government of Uttarakhand
Pandit Deendyal Upadhaya Paryatan Bhawan, Near ONGC Helipad
Garhi Cantt, Dehradun -248003

Uttarakhand
Simply Heaven!

Tel: 91-135-2559987, Fax: 91-135-2559988 E-mail: utdb.pmu@gmail.com

Ref.:4787-10-ADB/IDIPT/ 249/2014-15 Date: 04/02/2017

To,

The Director
Raja ji National Park

Subject:- Operating Yoga and Panchkarma Centre in existing TRH at Chilla

Dear Sir,

This is to inform that we wish to operate "Yoga and Panchkarma Centre" in our existing TRH at Chilla under ADB funded Infrastructure Development Investment Program for Tourism. This will be done by making minor modifications in the internal layout of the existing rooms and bathrooms.

Kindly issue NOC for the same.

Yours Sincerely
(Iva Ashish Srivastava, IAS)
Additional Chief Executive Officer

Copy to: -

PM, PIU Kotdwar for necessary follow up.

Additional Chief Executive Officer

Govt. of Uttarakhand

Program Management Unit
Infrastructure Development Investment Program for Tourism
(ADB Assisted – Loan No. 2833, India)
Government of Uttarakhand
Pandit Deendyal Upadhaya Paryatan Bhawan, Near ONGC Helipad
Garhi Cantt, Dehradun -248003

Uttarakhand
Simply Heaven!

Tel: 91-135-2559987, Fax: 91-135-2559988
E-mail: utdb.pmu@gmail.com

Ref.:4786/2-10-ADB/IDIPT/ 249/2014-15 Date: 04/02/2017

To,

The Director
Corbett National Park

Subject:- Operating Yoga and Panchkarma Centre in existing TRH at Mohaan

Dear Sir,

This is to inform that we wish to operate "Yoga and Panchkarma Centre" in our existing TRH at Mohaan under ADB funded Infrastructure Development Investment Program for Tourism. This will be done by making minor modifications in the internal layout of the existing rooms and bathrooms.

Kindly issue NOC for the same.

Yours Sincerely

(Iva Ashish Srivastava, IAS)
Additional Chief Executive Officer

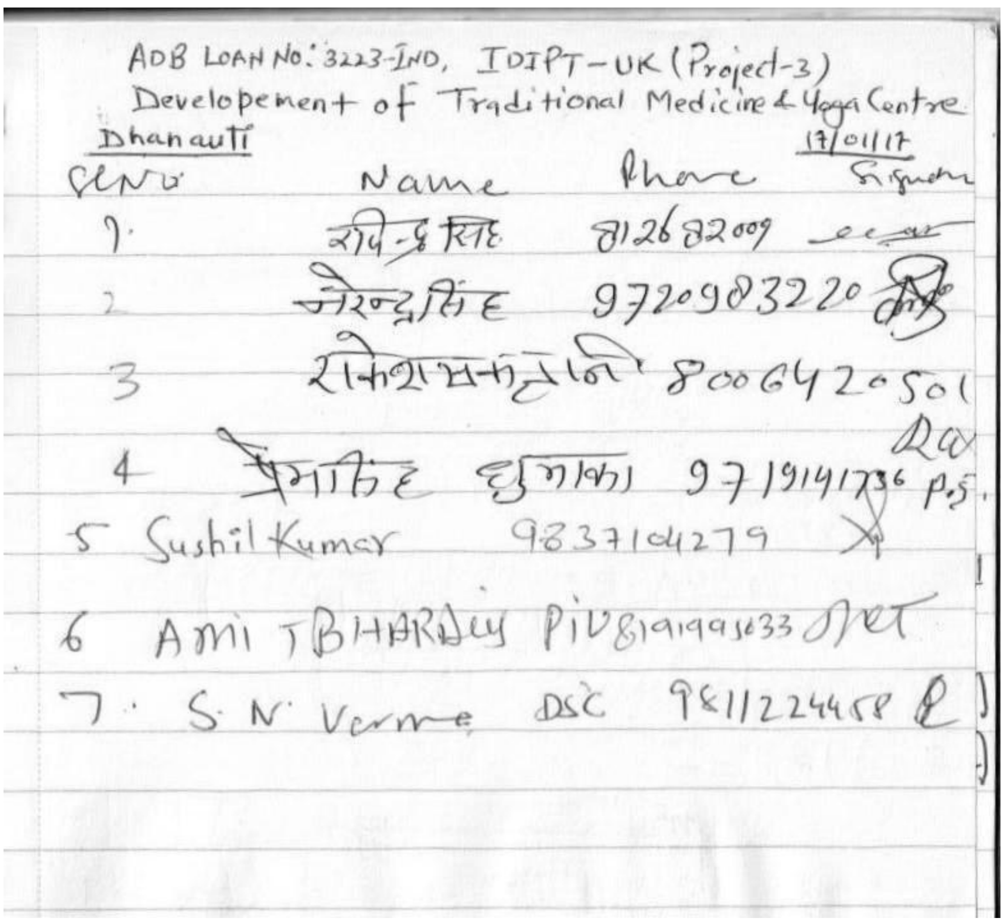
Copy to: -

PM, PIU Bhimtal for necessary follow up.

Additional Chief Executive Officer

Annexure-7 Photographs and Attendance Sheets of consultations

Photographs and Attendance Sheets of consultations at GMVN, Dhanaulti



ADB LOAN No: 3223-IND, IDIPT-UK (Project-3)
Developement of Traditional Medicine & Yoga Centre
Dhanauti 17/01/17

Sl No	Name	Phone	Signature
1.	[illegible] सिंह	8126 82009	[illegible]
2	[illegible] सिंह	9720983220	[illegible]
3	[illegible]	8006420501	[illegible]
4	प्रेम सिंह [illegible]	9719141736	P.S.
5	Sushil Kumar	9837104279	[illegible]
6	AMIT BHARDWAJ PIU	8191995033	[illegible]
7.	S. N. Verma DSC	9811224458	[illegible]

Photographs and Attendance Sheets of consultations at GMVN, Tip N Top, Lansdowne

ADB LOAN NO: 3223 – IND: Infrastructure Development Investment Program for Tourism (Project 3) Uttarakhand [IDIPT-UK]

Development of Traditional Medicine and Yoga Training Centres

Stakeholder Consultations

Date: 21/01/2017 **Location:** GMVN, Tip N Top Lansdowne

Planned Facility:

Sl. No.	Name	Designation	Phone No.	Signature
1	लालसिंह	[illegible]	9410948394	[signature]
2	शैलेन्द्र	वेटर	7248522580	[signature]
3	दर्शन सिंह	"	7351379696	[signature]
4	मनोज सिंह	कुक	9897649375	[signature]
5	सुनील सिंह	वेटर	7248257792	[signature]
6	Sushil Kumar.	CAD Operator DSC-K01	9837104279	[signature]
7	G.BANERJEE	TL, DSC.	9717003113	[signature]
8	[illegible]	DSC [illegible]	98112244[illegible]	[signature]
9	Amit Bhardwaj	PIU KOT	8191990333	[signature]
10	SHISHIR AIMA	FE, DSC	9557008060	[signature]
11				
12				
13				
14				

Photographs and Attendance Sheets of consultations at KMVN, Mohaan

ADB LOAN NO: 3223 – IND: Infrastructure Development Investment Program for Tourism (Project 3) Uttarakhand [IDIPT-UK]

Development of Traditional Medicine and Yoga Training Centres

Stakeholder Consultations
Date: 18/01/2017 **Location:** KMVN TRH, Mohaan
Planned Facility: Traditional Medicine & Yoga Training Centre

Sl. No.	Name	Designation	Phone No.	Signature
1	L.m.tewari	manager KMVN	7465902095	[illegible]
2	Chandan Rana	Room Attendant -KMVN	8171243539	[illegible]
3	Prakash Pandey	mali-KMVN	8006878184	[illegible]
4	Harish Negi	waiter KMVN	7830746746	[illegible]
5	Kishan Ram Arya	cook-KMVN	9917945271	[illegible]
6	Anil Kumar	(KMVN) Surveyor	9761543773	[illegible]
7	Sushil Kumar	CAD operator DSC-Kotdwar	9837104279	[illegible]
8	Shreewarsav	Environmental Standards Doc	98112-2[illegible]	[illegible]
9	AmitBHARDwaj	PIU Kotdwar	8191995633	[illegible]
10				
11				
12				
13				
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Photographs and Attendance Sheets of consultations at KMVN, Chiliyanaula

ADB LOAN NO: 3223 – IND: Infrastructure Development Investment Program for Tourism (Project 3) Uttarakhand [IDIPT-UK]

Development of Traditional Medicine and Yoga Training Centres

Stakeholder Consultations
Date: 19/01/2017 **Location:** KMVN TRH, Chiliyanaula

Planned Facility: Traditional Medicene & Yoga Centre

Sl. No.	Name	Designation	Phone No.	Signature
1	J. C. Tiwari	Manager	8650007534	
2	Gaurav Verma	Front office Assistance	8477047283	
3	Hyat Singh	Cook	9719703068	
4	Sanjay Adhikari	Cook	8958289654	
5	Harish Kumar Arya	House Keeping	9690807539	
6	Deep Sungal	House Keeping	———	
7	Shshil Kumar	CAD Operator Dsc	9837101279	
8		DSC	9811224	
9	AMITBHARDWAJ	DIO	8191995233	
10				
11				
12				
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14				

Photographs and Attendance Sheets of consultations at KMVN, Kausani

ADB LOAN NO: 3223 – IND: Infrastructure Development Investment Program for Tourism (Project 3) Uttarakhand [IDIPT-UK]

Development of Traditional Medicine and Yoga Training Centres

Stakeholder Consultations

Date: 19/1/2017 **Location:** Kausani

Planned Facility:

Sl. No.	Name	Designation	Phone No.	Signature
1	Bhagwan Ballabh Joshi	Kitchen manager	05962 258006	[signature]
2	Deewan Singh	Reception	7055423766	[signature]
3	Naresh Ch. wariyal	Reception	9927490555	[signature]
4	Puran singh	Room Atend	7055657320	[signature]
5	manoj singh	Room Atend	8126706234	[signature]
6	Mahesh Ram	Kuk	9568358566	[signature]
7	Santosh Kumar	Ketar	9927129609	[signature]
8	T. D. Bhtt.	Acco.	8859627050	T. D. Bhtt
9	Bhuwan Kandpal	Ketar	7690035864	[signature]
10	Narayan singh Jalal	mali	8192868766	[signature]
11	Sushil Kumar	CAD Operator DSC	9837104279	[signature]
12	[illegible]	DSC Kotdwar	981122446	[signature]
13	Amit BHARDWAJ	P.I.U Kot.	8191998833	[signature]
14				

Photographs and Attendance Sheets of consultations at KMVN, Chaokori

ADB LOAN NO: 3223 – IND: Infrastructure Development Investment Program for Tourism (Project 3) Uttarakhand [IDIPT-UK]

Development of Traditional Medicine and Yoga Training Centres

Stakeholder Consultations Chaukori
Date: 19/1/17 **Location:** Chokauri
Planned Facility: Yoga Center

Sl. No.	Name	Designation	Phone No.	Signature
1	Bhaskar Pant	स्वामी	9410122188	B.Pant
2	देवेन्द्र राम	[illegible]	8958807850	[illegible]
3	Bahadur	सहायक कुक	8477939362	Bahadur
4				
5	[illegible]	कुक	9410137201	[illegible]
6	[illegible]	[illegible]	-	[illegible]
7	Sushil Kumar	CAO Operations DSC	9837104279	[illegible]
8	[illegible]	DSC [illegible]	981122468	[illegible]
9	Mr. R.C. Joshi	Manager TRH	8650002542	
10	Amit Bhandari	PIO	[illegible]	
11				
12				
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14				

Photographs and Attendance Sheets of consultations at KMVN, Naukuchiyatal

ADB LOAN NO: 3223 – IND: Infrastructure Development Investment Program for Tourism (Project 3) Uttarakhand [IDIPT-UK]

Development of Traditional Medicine and Yoga Training Centres

Stakeholder Consultations

Date: 20/01/2017 **Location:** KMVN TRH, Naukuchiyatal Parichay

Planned Facility:

Sl. No.	Name	Designation	Phone No.	Signature
1	P.C. Pandey	Mgr.	05942-247138 8650002524	
2	Subash Arya	Waiter	9456397195	
3	Mohan Ram	Waiter	9410715085	
4	Dayal Singh	Kitchen	7895501829	
5	Nandan Singh	Staff	9627591660	
6	Sushil Kumar	CAD Operator DSC	9837104279	
7	Shivanand	DSC Executive	9811224488	
8	Kundan Lal	COOK-KMVN	9756440692	
9	Anil Chanotiya	Social Worker	9634910567	
10	Pooja T Bhardwaj	PIU ICOT	8191998833	
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12				
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14				

Photographs and Attendance Sheets of consultations at KMVN, Sukhatal

ADB LOAN NO: 3223 – IND: Infrastructure Development Investment Program for Tourism (Project 3) Uttarakhand [IDIPT-UK]

Development of Traditional Medicine and Yoga Training Centres

Stakeholder Consultations
Date: 20/01/2017 **Location:** KMVN Mount View, Sukhatal

Planned Facility:

Sl. No.	Name	Designation	Phone No.	Signature
1	Meena Saha	Manager	9410732388	[signature]
2	Nirmala Gaikwad	Reception	9410112739	[signature]
3	Viveek Singh	Receptionist	9917282096	[signature]
4	Bharat Paul	Receptionist	9458322666	[signature]
5	Charanjeet	Receptionist	9557186569	[signature]
6	Mad. Azmi	[illegible]	[illegible]	[signature]
7	D.K. Sharma	OSD (Tourism) KMVN	8650002504	[signature]
8	Sushil Kumar	CA D Operator DSC-Kot	9837104279	[signature]
9	[illegible]	DSC [illegible]	09811224458	[signature]
10	Amit [illegible]	[illegible]	8191998353	[signature]
11	T.S. Martolia	GM KMVN	8650002807	[signature]
12				
13				
14				